

EXHIBIT 13

LEXSEE 2004 U.S. DIST. LEXIS 28518

**MALLINCKRODT INC. AND NELLCOR PURITAN BENNETT, INC., Plaintiffs,
v. MASIMO CORP. and IVY BIOMEDICAL SYSTEMS, INC., Defendants.**

Case No: 00-6506 MRP (AJWx)

**UNITED STATES DISTRICT COURT FOR THE CENTRAL DISTRICT OF
CALIFORNIA**

2004 U.S. Dist. LEXIS 28518

July 12, 2004, Decided
July 12, 2004, Filed

SUBSEQUENT HISTORY: Affirmed in part and reversed in part by, Remanded by *Mallinckrodt, Inc. v. Masimo Corp.*, 147 Fed. Appx. 158, 2005 U.S. App. LEXIS 19427 (Fed. Cir., Sept. 7, 2005)

PRIOR HISTORY: *Mallinckrodt, Inc. v. Masimo Corp.*, 292 F. Supp. 2d 1201, 2003 U.S. Dist. LEXIS 24144 (C.D. Cal., 2003)

COUNSEL: [*1] For Mallinckrodt Inc, Plaintiff: Adel Aali, Kevin P B Johnson, Nicola A Pisano, Fish & Neave, Palo Alto., CA; Anthony A Pastor, Robert C Morgan, Scott Howard Kaliko, Fish & Neave, New York, NY; Craig N Hentschel, Dykema Gossett, Los Angeles, CA; Stephen C Neal, Cooley Godward, Palo Alto, CA; Stephen P Swinton, Cooley Godward, San Diego, CA.

For Nellcor Puritan Bennett, Inc, Plaintiff: Adel Aali, Kevin P B Johnson, Nicola A Pisano, Fish & Neave, Palo Alto., CA; Anthony A Pastor, Robert C Morgan, Scott Howard Kaliko, Fish & Neave, New York, NY; Craig N Hentschel, Dykema Gossett, Los Angeles, CA; Stephen C Neal, Linda Anne Fritsch Callison, Cooley Godward, Palo Alto, CA; Stephen P Swinton, Cooley Godward, San Diego, CA.

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For Masimo Corporation, Ivy Biomedical Systems Inc, Counter Claimants: Irfan A Lateef, James F Lesniak, Jon W Gurka, Joseph S Cianfrani, Stephen C Jensen, Knobbe Martens Olson & Bear, Irvine, CA.

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For Daniel Goldberger, Movant: Robert C Weiss, Theodore S Maceiko, Jones Day, Los Angeles, CA.

JUDGES: Honorable Mariana R. Pfaelzer, United States District Judge.

OPINION BY: Mariana R. Pfaelzer

OPINION:

**MEMORANDUM OF DECISION AND ORDER
RE: Post-Trial Motions**

The parties have each filed post-trial motions¹ that include renewed motions for judgment as a matter of law (JMOL), argument on the equitable issues presented to the Court, and other post-trial matters. This memorandum of decision and order addresses these submissions, and concludes that claims 16 and 23 of the 222 patent are literally infringed, claim 17 of the 850 patent is literally infringed, the 785 patent is not infringed, the 830 patent is unenforceable, and that the infringement was not willful. Otherwise, the jury's verdict has not been affected. Although the 222 and 850 patents are valid, enforceable, and infringed, the Court has concluded that an injunction is not in the public interest and that [*4] damages will sufficiently compensate Masimo for its losses due to the infringement of its patents.

Having considered the parties' arguments, both oral and written, the Court makes the following rulings: 1) Nellcor's motion for JMOL on liability issues is granted as to claims 29 and 30 of the 785 patent, granted as to willfulness on all patents, and denied as to all other liability issues; 2) Nellcor's motion for a new trial on liability issues is denied; 3) Nellcor's motion for JMOL on damages issues is denied; 4) Nellcor's motion for a new trial on damages issues is denied; 5) Nellcor's indefiniteness defense is denied; 6) Nellcor's unenforceability defense is granted as to the 830 patent, and denied as to the remaining patents; 7) Masimo's motion for JMOL of literal infringement of the Kalman claims is granted; 8) Masimo's request for an injunction is denied; 9) Masimo's proposal for damages for infringing sales made after December 31, 2003 will require further consideration. The Court's decision on damages and prejudgment interest will require an additional hearing.

INTRODUCTION

I. BACKGROUND

A. Procedural History [*5]

The Court held a six week trial of this case during February and March 2004. Masimo Corp. ("Masimo") claimed that Mallinckrodt, Inc. and Nellcor Puritan Bennett, Inc. (collectively, "Nellcor") were infringing Ma-

simo's 222, 785, 830, and 850 patents, and that this infringement was willful. Nellcor charged Masimo with infringement of one patent, its 000 patent, and argued that Masimo's 222, 785, 830, and 850 patents were invalid. The jury's verdict was that Nellcor had willfully infringed each of Masimo's four asserted patents, either literally or under the doctrine of equivalents, and that Masimo had not infringed Nellcor's patent. Verdict Form (filed March 15, 2004). The jury awarded Masimo \$ 134,528,960 in lost profits and reasonable royalty. Joint Judgment on Jury Verdict (filed April 5, 2004); Damages Jury Verdict (filed March 23, 2004). Following this damages verdict, this Court heard evidence on equitable issues on March 24 and 25, 2004.

B. Patents

Masimo asserted four patents in this case, and Nellcor asserted one. Each of these patents relates to pulse oximetry, which is a non-invasive measurement of arterial blood saturation. n1

n1 The descriptions of pulse oximetry and the patents-in-suit that are contained in this section are intended for informational purposes only, and do not constitute rulings of this Court.

[*6]

In pulse oximetry, a sensor is attached to the patient's finger and light from an emitter in the sensor is sent through the oxygen-carrying arteries in the patient's tissue. A detector measures the amount of light that is transmitted through the finger. Because differing levels of oxygen in the blood alter the amount of light waves transmitted through the patient's tissue (a phenomenon known as "energy attenuation"), the amount of light absorbed can be used to calculate an oxygen level.

Although the sensor should ideally only detect signals from the patient's arterial blood, the signal is often accompanied by "noise" resulting from patient movement, muscular movement, and vessel movement. Movement can cause the properties of energy attenuation to vary erratically, and thus can affect the accuracy of the oxygen saturation reading. To resolve this issue, filters, which generally consist of a processor and software running a particular filtering algorithm, are employed to eliminate the unwanted noise. The noise sought to be filtered is erratic, rather than constant, so manufacturers employ "adaptive filters" which have the ability to identify and filter varying levels of noise.

[*7] 1. Masimo's Patents

Each of Masimo's four asserted patents is related in that they are all continuations of the 060 application, which was filed March 7, 1991 and later abandoned.

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Generally, each of these patents relates to optimizing the signal that results when light is passed through a physiologic sample, such as a patient's finger, creating signals with both primary (desired) and secondary (noise) components. During trial, the jury found that each of Masimo's asserted patents was valid and infringed.

a. 785 Patent

The first of Masimo's patents to issue was the 785 patent, which is titled "Signal Processing Apparatus and Method" but was called the "Linear Relationship" patent during the trial. *U.S. Patent No. 5,769,785 ("785 patent")*; JTX 202. Masimo asserted independent claim 29 and claim 30, which depends from claim 29, against Nellcor's 05Ci products. The method described in the 785 patent is a method of taking physiologic measurements by passing light energy of two wavelengths through a physiological medium to generate two signals, each of which includes both the desired measurement and a secondary "noise" component. 785 patent, col.54:1-21. The wavelengths [*8] that are passed through the medium are chosen such that there will be a substantially linear relationship between the noise component of each of the generated signals; this linear relationship is then used to remove the noise component from the signals. *Id.*

The 918 application that became the 785 patent is a division of the 690 application that became the 036 patent. The 690 application is a continuation of the 060 application that was filed March 7, 1991 but subsequently abandoned. The 918 application was filed on June 7, 1995 and the patent issued on June 23, 1998. The term of the patent is limited to that of *U.S. Patent No. 5,490,505 ("505 Patent")*, which was issued on February 13, 1996.

b. 850 Patent

The second of the patents-in-suit to issue, the 850 patent, is titled "Signal Processing Apparatus" but was called the "Parallel Engine" patent during trial. *U.S. Patent No. 6,157,850 ("850 patent")*; JTX 212. Masimo asserted independent claim 1, and claims 10-12, 15, 17 and 22, which depend from claim 1, against Nellcor's 04, 05, and 05Ci products. These claims describe a method of parallel processing of and arbitration between two separate signals (such as the [*9] signals described in the 785 patent). 850 patent, col. 109:1-16; 45-52, 60-63, 66-67, col. 110: 11-15. In claim 17, the signals are adaptively filtered using a Kalman filter. 850 patent, col. 109:66-67.

The 850 application is a continuation-in-part of the 812 application that became the 505 patent and of the 690 application that became the 036 patent. The 690 application that became the 036 patent was a continuation of the 060 application. The first application to describe

arbitrating between alternative pathways was filed October 7, 1994. The application that became the 850 patent was filed May 16, 1997 and claim 17, which references a Kalman filter, was added on November 20, 1998. The 850 patent issued on December 5, 2000. A terminal disclaimer limits the term of the 850 patent to that of the 272 patent, which was issued May 17, 1997. JTX 212, FH1895-96; *U.S. Patent No. 5,632,272*.

c. 830 Patent

During the trial the 830 patent, which is titled "Signal Processing Apparatus and Method", was described as the "Self-Optimizing Filter" patent. *U.S. Patent No. 6,206,830 B1 ("830 Patent")*; JTX 206. Masimo asserted independent claim 9, claim 14, which depends from claim [*10] 9, independent method claim 20, and claim 25, which depends from claim 20 against Nellcor's 04, 05 and 05Ci algorithms. The apparatus claims describe a pulse oximeter comprising, and the method claims describe a process including, among other features, a filter responsive to signals like those described in the 785 and 850 patents and that adjusts itself in response to changes in the signals to optimize the output from the signals. 830 Patent, col.44:1-33, 42-43, 63, col.45:1-8, 17-18.

The 830 patent has the same specification as the 642 and 785 patents. It is a continuation of the 642, which is a continuation of 785 patent, which is a continuation of the 036 patent, which is a continuation of the now-abandoned 060 application. The application that resulted in the 830 patent was filed on November 17, 1999 and the patent issued on March 27, 2001. The term of the 830 patent is limited, by a terminal disclaimer, to the term of the 785 patent. JTX 207, FH0874.

d. 222 Patent

The 222 patent was referred to as the "Kalman Filter" patent during the trial. *U.S. Patent No. 6,263,222 B1 ("222 Patent")*; JTX 210. Masimo asserted independent method claim 1, claim 4, which depends [*11] from claim 1, independent apparatus claim 16, independent apparatus claim 17, and claims 18, and 21-23, which depend from claim 17 against Nellcor's 04, 05, and 05Ci algorithms. These claims describe filtering the signals described in Masimo's other asserted patents to derive arterial oxygen saturation. 222 Patent, col 73:1-18, 26-29, col. 74: 42-56, 57-67, col.75:1-11, col.76:5-10. Claims 1, 4, 16, and 23 utilize Kalman filter limitations. 222 Patent, Col.73:1-18, 26-29, col.74:42-56, col.76:9-10.

The 222 patent is a continuation of the 505 patent, which was a continuation-in-part of the 060 application. The application was filed on October 6, 1997. Kalman filter language was first added on October 16, 1998. This language was amended on November 20, 1998, March

20, 2000 and August 18, 2000. The patent issued on July 17, 2001.

2. Nellcor's 000 Patent

Nellcor's 000 patent is entitled "Adhesive Pulse Oximeter Sensor with Reusable Portion." *U.S. Patent No. 36,000* ("000 Patent"), JTX 106. Independent apparatus claims 18, and claims 21, 23-24, and 26, which depend from claim 18, were asserted against Masimo's first and second generation patient cables and disposable sensors. [*12] These claims describe a sensor with a disposable component that is connected to the patient, a cable to connect the sensor to an external monitor, and a means for connecting the two. *000 Patent*, col.7:33-8:12, 17-18, 22-25, 31-33.

The *000 patent* is a reissue of the 230 patent that was issued on May 11, 1993. Each of the asserted claims is part, of the reissue. The 964 application that resulted in the *000 patent* was filed on May 10, 1995 and the patent issued on December 22, 1998.

II. MOTIONS AT ISSUE

A. Filings

Masimo filed a renewed motion for JMOL on April 15, 2004, and its consolidated memorandum on post-trial motions on May 6, 2004. Memorandum of Points and Authorities in Support of Masimo's Motion for: 1) Judgment as a Matter of Law that Nellcor Literally Infringes Claim 17 of the *850 patent* and Claims 16 and 23 of the *222 Patent*; 2) A Permanent Injunction, 3) An Accounting for Infringing Sales Occurring in 2004, and 4) Pre-judgment Interest. ("M.Mot"). Masimo filed two declarations and a supplemental appendix in support of this motion. Declaration of Joseph S. Cianfrani in Support of Masimo's Motion (filed May 6, 2004) ("Cianfrani Decl."); Declaration [*13] of Michael J. Wagner in Support of Masimo's Motion (filed under seal May 7, 2004) ("Wagner Decl."); Masimo Corp's Supplemental Appendix (filed June 8, 2004).

Nellcor also filed a renewed motion for JMOL on April 15, 2004. Nellcor's consolidated memorandum dealing with equitable relief and post-trial motions was filed on May 6, 2004. Nellcor's Memorandum of Points and Authorities in Support of: 1) Argument on Bench Trial and 2) Renewed Motion for Judgment as a Matter of Law or Alternatively, a New Trial (filed May 6, 2004) ("N.Mot"). Nellcor filed five appendices along with its Motion. Appendices to Nellcor's Memorandum of Points and Authorities (filed May 6, 2004) ("N.App").

Each party opposes the other party's motions. Masimo's Memorandum of Points and Authorities in Opposition to Nellcor's 1) Argument on Bench Trial; and 2) Renewed Motion for Judgment as a Matter of Law or for

a New Trial (filed May 27, 2004) ("M.Opp"); Nellcor's Opposition to Masimo's Motion for Judgment as a Matter of Law and Other Post-Trial Issues (filed May 27, 2004) ("N.Opp"); May 26, 2004 Declaration of Brian C. Dragun (filed May 27, 2004) ("Dragun Decl."); Declaration of Christopher Jones in Opposition [*14] to the Motion for Permanent Injunction (filed May 27, 2004) ("Jones Decl."); Declaration of David A Sell in Opposition to Motion for Permanent Injunction (filed May 27, 2004) ("Sell Decl."). The parties jointly lodged a twelve-volume appendix, which consists of trial exhibits and testimony relevant to the post-trial proceedings. Joint Appendix (lodged June 8, 2004).

B. Hearings

On June 18, 2004 the Court heard oral argument on Masimo's request for an injunction. The remaining issues discussed in this memorandum of decision were extensively briefed, both in these post-trial proceedings and when the motions for JMOL were originally filed during trial. Except for the argument on damages expressly requested by the Court in this Order, the Court has concluded that oral argument on the remaining issues would not assist the Court in its decisions.

C. Issues

The parties' post trial motions present four main issues: 1) whether, as is suggested by the parties' motions for judgment as a matter of law, the evidence is insufficient to support parts of the jury's verdict, 2) whether there is merit to Nellcor's equitable claims of indefiniteness and unenforceability; 3) whether [*15] Nellcor is entitled to a new trial if its motions for judgment as a matter of law are not granted, and 4) whether Masimo is entitled to an injunction.

JUDGMENT AS A MATTER OF LAW

Both parties have made renewed motions for judgment as a matter of law under *Rule 50(b)* of the *Federal Rules of Civil Procedure (FRCP)*. *FRCP Rule 50(a) (1)* establishes the standard by which this Court must consider the parties' motions for judgment as a matter of law:

If during a trial by jury a party has been fully heard on an issue and there is no legally sufficient evidentiary basis for a reasonable jury to find for that party on that issue, the court may determine the issue against that party and may grant a motion for judgment as a matter of law against that party with respect to a claim or defense that cannot stand under the controlling

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law be maintained or defeated without a favorable finding on that issue.

FRCP Rule 50(a)(1). In accordance with this standard, this Court should grant JMOL if substantial evidence does not support the jury's factual findings, or if those factual findings cannot support the legal conclusions implied from the jury's verdict. *Chiron Corp. v. Genentech, Inc.*, 363 F.3d 1247, 1252-53 (Fed. Cir. 2004). [*16]

A District Court may overturn a jury's verdict only if reasonable jurors could not have reached that verdict on the record that was before them. *Electro Sci. Indus. v. Gen. Scanning, Inc.*, 247 F.3d 1341, 1349 (Fed. Cir. 2001); *Burroughs Wellcome Co. v. Barr Lab.*, 40 F.3d 1223, 1227 (Fed. Cir. 1994) (noting that JMOL is appropriate only if the Court's conclusion is "the only one possible under the controlling law"); *Bell v. Clackamas County*, 341 F.3d 858, 865 (9th Cir. 2003) (noting that the Court "may not make credibility determinations and must draw all inferences in [the non-moving party's] favor, disregarding all evidence favorable to the defendants that the jury was not required to believe"). This Court must view the evidence in the light most favorable to the non-moving party, draw all reasonable inferences in favor of the non-moving party, and consider whether there is sufficient evidence in the record to support the jury verdict. *Horphag Research Ltd. v. Pellegrini*, 337 F.3d 1036, 1040 (9th Cir. 2003); *McEuin v. Crown Equip. Corp.*, 328 F.3d 1028, 1036 (9th Cir. 2003).

I. INFRINGEMENT [*17]

The jury determined that Nellcor infringed each of Masimo's asserted patents, and that Masimo did not infringe Nellcor's patent. Verdict Form, Q.1-8, 14-15. The parties challenge three aspects of the jury's verdict. n2 First, both parties challenge the jury's verdict that the Kalman claims in the 222 and 850 *patents* were infringed under the doctrine of equivalents. Next, Nellcor argues that the evidence does not support the jury's finding that claims 29 and 30 of the 785 *patent* were literally infringed. Finally, Nellcor argues that the evidence does not support the jury's finding that Nellcor's 000 *patent* was not infringed.

n2 Several aspects of the jury's infringement verdict have not been challenged in the parties motions for judgment as a matter of law. Neither party contests the jury's finding that Nellcor's 04, 05, and 05Ci products infringe the asserted claims of the 830 *patent*. Verdict Form, Q.3. Although they dispute the Kalman claims in the 222 and 850 *patents* that were found to be infringed

under the doctrine of equivalents, neither party contests the claims in the 222 and 850 *patents* that were found to be literally infringed. Verdict Form, Q.1,5. Thus the jury's verdict that Nellcor's products infringe claims 9, 14, 20 and 25 of the 830 *patent*, claims 17, 18, 21 and 22 of the 222 *patent*, and claims 1, 10, 11, 12, 15, and 22 of the 850 *patent* stands unchallenged by these motions.

[*18]

The Court denies the first and third of these challenges to the jury's verdict, but grants Nellcor's motion for JMOL that claims 29 and 30 of the 785 *patent* are not infringed. This ultimately results in the conclusion that claims 16 and 23 of the 222 *patent* and claim 17 of the 850 *patent* are literally infringed, and claims 1 and 4 of the 222 *patent* are infringed under the doctrine of equivalents.

A. Kalman Claims

Each of the claims that were found to be infringed under the doctrine of equivalents involves a Kalman filter. 222 *patent*, claims 1, n3 4, n4 16, n5 and 23; n6 850 *patent*, claim 17 n7 (collectively, "Kalman claims"). Masimo seeks JMOL that Nellcor's products used Kalman filters, and thus that the Kalman claims were literally infringed. M.Mot: 2-11. n8 Nellcor seeks JMOL that the Kalman claims were not infringed at all. N.Mot: 42-44. The Court grants Masimo's motion and denies Nellcor's motion.

N3 Claim 1 includes, as one of the steps of a claimed method of physiological monitoring, "determining arterial oxygen saturation during motion by filtering at least one of said intensity signals wit [sic] a Kalman filter to generate an approximation of arterial oxygen saturation during motion. . ." 222 *patent*, col. 73:2-18.

[*19]

n4 Although the language of claim 4 does not mention a Kalman filter, claim 4 depends from claim 1, which does require a Kalman filter. 222 *patent*, col. 73: 26-29.

n5 Claim 16 is an independent claim describing a pulse oximeter comprising, among other features, "a processor responsive to the [sic] at least two intensity signals to determine an approximation of arterial oxygen saturation in the presence of motion induced noise, wherein the

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processor comprises a Kalman filter." 222 *patent*, col. 74:43-56.

n6 Claim 23 depends from claim 17, which describes a physiological monitor that computes arterial oxygen saturation in tissue material having arterial and venous blood. 222 *patent*, col.74:57-75:8. In addition to the limitations of claim 17, and those imposed by other claims that depend on claim 17 and from which claim 23 also depends, claim 23 adds the limitation "wherein said adaptive filter comprises a Kalman filter." 222 *patent*, col. 76:8-9.

n7 Claim 17 depends from claim 1, which describes a method of improving the determination of a physiological parameter based upon physiological signals. 850 *patent*, col. 109:2-16. In addition to the limitations of claim 1, and those imposed by other claims that depend on claim 1 and from which claim 17 also depends, claim 17 adds the limitation "wherein said step of filtering comprises filtering said signals with a Kalman filter."

[*20]

n8 Masimo seeks judgment as a matter of law of literal infringement for claims 16 and 23 of the 222 *patent* and claim 17 of the 850 *patent*, not for claims 1 and 4 of the 222 *patent*, which were also Kalman claims. This is presumably because claims 16 and 23 of the 222 *patent* and claim 17 of the 850 *patent* add only the limitation of a Kalman filter to the claims from which they depend, which were found literally infringed, and it is thus possible to isolate the Kalman limitation as the reason the jury found these claims to be infringed only under the doctrine of equivalents. However, claim 1 of the 222 *patent* is an independent claim, and claim 4 depends from claim 1, so it is not possible to isolate the Kalman limitation, as opposed to other limitations in the claim, as the reason the jury did not find literal infringement.

1. Literal Infringement

It is undisputed that Nellcor's accused products utilize Kalman filters. See Friedlander Cross 1973:17-21 n9 (describing Nellcor's two Kalman filters, Kalman C-Lock and Kalman SAT). Masimo argues that because its patents claim Kalman filters, [*21] and because Nellcor's

products use Kalman filters, the Kalman claims are literally infringed. M.Mot: 5-11.

n9 Unless otherwise indicated, references to testimony are references to the trial transcript.

There are three theories the jury could have adopted that would be consistent with its verdict that the Kalman claims were infringed only under the doctrine of equivalents. n10 First, the jury could have concluded that an equivalent of the Kalman filter, but not a Kalman filter, performs the claimed function in Nellcor's products. Next, the jury could have concluded that Nellcor's products use a Kalman filter, but not in the same way or for the same function that Kalman filters are used in Masimo's patents. Finally, the jury could have concluded that Nellcor's products use a Kalman filter to perform the claimed functions, but a different type of Kalman filter than that described in the patent. The first two theories are not reasonable in light of the evidence; the final theory compels a finding of literal infringement. [*22]

n10 Claims 16 and 23 of the 222 *patent* are apparatus claims. Claims 1 and 4 of the 222 *patent* and claim 17 of the 850 *patent* are method claims. The analysis in this section considers infringement of both types of claims.

To support the first theory, the jury would have had to determine that a filter that was an equivalent to a Kalman filter, but not a Kalman filter, performed the claimed functions. No evidence was presented to support this theory. Nellcor's products utilize synchronous averaging Kalman filters, which is a type of Kalman filter. N.Mot: 43. There was no evidence that Nellcor's accused products utilize any non-Kalman filter to perform the functions described in the 222 and 850 *patents* as being performed by Kalman filters. Consequently, a jury could not have reasonably concluded that a filter equivalent to a Kalman filter, but that was not a Kalman filter, performed the claimed functions.

The second possible conclusion, that Nellcor's Kalman filters are utilized differently than the Kalman [*23] filters described in the 222 and 850 *patents*, is equally unreasonable. To have determined that the Kalman claims were only infringed under this theory, the jury would have had to accept some evidence that Nellcor's Kalman filters are used for a function or in a manner that is equivalent, but not identical, to the claimed method. There was no evidence or argument to support that conclusion. See N.Mot: 3-5 (arguing that Nellcor uses a different type of Kalman filter, but not contending that Nellcor uses a Kalman filter in a different manner).

The third theory supposes that the jury reached a definition of Kalman filter narrower than Masimo's interpretation, and found that Nellcor's synchronous averaging filters were equivalent, but not identical, to the Kalman filters described in the claim. The record supports the idea that there are many variants of Kalman filters. 3/4/04 Friedlander Direct 1899:15-1900:17. However, Masimo's claims are not limited to any particular type of Kalman filter. Thus if the jury found that one type of Kalman filter in Nellcor's products performs the functions described in the patents as being performed by Kalman filters, the only reasonable conclusion [*24] was that there was literal infringement.

Because the only reasonable conclusion the jury could have reached compels a finding of literal infringement, Masimo's motion for JMOL of literal infringement of claims 16 and 23 of the 222 *patent* and claim 17 of the 850 *patent* is granted.

2. No Infringement

a. Construing "Kalman Filter"

Nellcor uses its motion for judgment as a matter of law to argue, once again, that the "Kalman filter" described in Masimo's patents is narrower than the plain language of the claims. N.Mot: 42-44 (citing *Masimo Corp. v. Mallinckrodt Inc.*, 18 Fed. Appx. 852 (Fed. Cir. 2001) ("*Masimo I*"). n11 Unlike the 222 and 850 *patents* in this case, the 642 *patent* considered in *Masimo I* did not explicitly claim Kalman filters. In *Masimo I* the Court found that in light of the claims, specification, and prosecution history the "adaptive filter" and "adaptive signal processor" claims that were asserted against Nellcor's products were limited to adaptive noise cancellers. The *Masimo I* Court issued summary judgment of non-infringement because it found that the Kalman filters in Nellcor's products were not adaptive noise [*25] cancellers that worked in the manner described in the 642 *patent*. This Court has previously declined to narrow the claim terms in this case to include only adaptive noise cancellers because the claim terms in the 222 and 850 *patents* explicitly claim Kalman filters. In accordance with the longstanding principle of claim construction that one should not read limitations into the claim from the specification this Court refused to limit the 222 and 850 claims. Claim Construction Order, pp.11. The Court thus finds no merit in Nellcor's argument that the Court should have further defined the term "Kalman filter" in the 222 and 850 *patents*. n12

n11 In *Masimo I*, the Federal Circuit was faced with determining the proper claim construction of the terms "adaptive filter" and "adaptive signal processor," as used in Masimo's U.S. Patent No. 6,036,642 (issued Mar. 14, 2000) (the

"642 *patent*"), which shares the same specification as the 785 and 830 *patents* in this suit. The District Court declined Masimo's invitation to interpret the claim terms "adaptive filter" and "adaptive noise canceller" to mean a generic adaptive filter; instead, it construed the term to mean "only one specific type of adaptive filter, an adaptive noise canceller."

[*26]

n12 Even if this Court had defined "Kalman filter" to be limited to least squares filters, this would not have affected the jury's verdict. The jury's verdict that the Kalman claims were adequately described indicates acceptance of testimony and evidence that least squares filters are mathematically equivalent to Kalman filters. See Enablement in Section II, infra, for this discussion. Thus, as Nellcor's products utilize Kalman filters, and as the jury evidently accepted that Kalman filters and least squares filters were mathematical equivalents, had this Court narrowed the definition of Kalman filters the jury would have still found that Nellcor's products infringe under the doctrine of equivalents.

Because Masimo's claims describe Kalman filters generally, not a specific type of Kalman filter, the only reasonable conclusion from the evidence is that these claims were literally infringed. For this reason, and for the reasons for granting JMOL of literal infringement stated above, the Court denies Nellcor's motion for JMOL of no infringement as to claims 16 and 23 of the 222 *patent*, [*27] and claim 17 of the 850 *patent*. The argument that the Kalman claims should have been defined is unpersuasive as to claims 1 and 4 of the 222 *patent* as well, but further discussion of these claims, as considered below, is warranted.

b. 222 *Patent*: Claims 1 and 4

At this point in the analysis, the jury's verdict that claims 1 and 4 of the 222 *patent* are infringed under the doctrine of equivalents is undisturbed. n13 In addition to the argument -- rejected above -- that the Kalman claims should have been defined, Nellcor proffers an additional reason for disturbing the jury's verdict on infringement of claims 1 and 4 of the 222 *patent*.

n13 As is previously noted, Masimo's motion for JMOL did not challenge the jury's verdict regarding claims 1 and 4 of the 222 *patent*.

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Claims 1 and 4 of the 222 *patent* require "filtering at least one of said intensity signals with a Kalman filter to generate an approximation of arterial oxygen saturation. . . ." 222 *patent*, JTX 3541, col. 73:1-29. Nellcor insists that [*28] claim 1 requires the output of a Kalman filter to be oxygen saturation, and argues that because its Kalman C-lock filter must be combined with a separate signal processor to create an oxygen saturation output it cannot infringe these claims. N.Mot:42. However, the jury's verdict to the contrary can be supported by the record. Masimo's expert testified that the Kalman filter that generates "an approximation of arterial oxygen saturation during motion" does not have to be the same Kalman filter that "generate[s] an approximation of arterial oxygen saturation." Goldberg Direct 2443:17-2444:12. The jury may have concluded that by using a Kalman filter to perform the filtering step and then calculating oxygen saturation, Nellcor's accused products infringed this claim under the doctrine of equivalents. While perhaps not the conclusion this Court would have reached, the jury's verdict is not so unreasonable, in light of the evidence, that this Court will disturb it.

There is adequate support for the jury's verdict that claims 1 and 4 of the 222 *patent* were infringed under the doctrine of equivalents. A reasonable jury may have concluded, based on the evidence, that Nellcor's Kalman C-lock [*29] filter and separate signal processor infringed claims 1 and 4 of Masimo's 222 *patent* under the doctrine of equivalents. There is also no basis (as determined in subsection (a)) for concluding that the Kalman limitations in these claims required further construction. Consequently, this Court denies Nellcor's motion for JMOL related to infringement of claims 1 and 4 of the 222 *patent*.

B. '785 Patent

Masimo accused Nellcor's 05Ci products of infringing claims 29 and 30 of the 785 *patent*, and the jury found that both claims were literally infringed. Verdict Form, Q.6. Claim 29 is an independent claim describing a method of taking a physiological measurement; claim 30 depends from claim 29. 785 *patent*, col.54:17-21. n14

n14 The method described in claim 29 is comprised of the following steps:

passing light energy of at least first and second wavelengths through a light-absorptive physiologic medium to a light-sensitive detector to generate, respectively, first and second signals . . . the first and second wavelengths se-

lected based on light absorption characteristics of the physiologic medium such that a substantially linear relationship exists between the secondary portion of the first and second signals; and combining said first and second signals to generate a signal which is primarily correlated to the physiologic measurement portions, the step of combining comprising using the linear relationship to substantially remove the secondary portion of the signals.

785 *patent*, col.54:1-16.

[*30]

Nellcor asserts three reasons it believes that there is no support for the jury's finding that the 785 *patent* was literally infringed. The first two of these arguments are unpersuasive, but the third is convincing and is the basis for this Court's decision to grant Nellcor's motion for JMOL that Masimo failed to present sufficient evidence to support the jury verdict that claims 29 and 30 of the 785 *patent* were literally infringed.

First, Nellcor argues that the "selected based on . . ." limitation is not met because Nellcor selected its light wavelengths in 1982, nine years before the 785 *patent* application was filed, and continued using the same wavelengths in its 05Ci products. N.Mot:41. In trial Mr. Corenman from Nellcor testified that he selected the wavelengths for properties, such as cost, that had nothing to do with the linear relationship. Corenman Direct 1463:9-1464:5, 1473:15-19, 1557:4-13. If Mr. Corenman's testimony is accepted, then the "selected based upon . . ." limitation of claim 29 is probably not infringed, but the jury apparently rejected Mr. Corenman's testimony. Rather than accepting Mr. Corenman's testimony that it is essentially a coincidence that [*31] the wavelengths in Nellcor's products are those covered by Masimo's patent claims, a reasonable jury may have inferred an intent to take advantage of the linear relationship from the fact that Nellcor's accused 05Ci products contained those wavelengths. Consequently, this Court cannot base judgment as a matter of law on Nellcor's argument that the "selected based upon . . ." limitation was not infringed.

Second, Nellcor argues that another limitation requires "first and second signals" generated by light passing through the tissue (the red and infrared signals) to be combined, but that Masimo identified only the noise signals (not red and infrared signals) in Nellcor's technology

as being combined. N.Mot:41. However, Masimo's expert, Mr. Goldberg, testified that the software specification for Nellcor's 05Ci products shows "a linear combination of IR and red derived values" that is identical in structure and form to the linear combiner in the 785 patent. Goldberg Direct 820:17-25. A reasonable jury could have accepted this testimony; this Court will not grant judgment as a matter of law on this basis.

Finally, Nellcor argues that the signal resulting from the combination of the two [*32] signals in Nellcor's 05Ci algorithm is a noise signal and thus can neither be correlated to the physiologic measurement portions of the "first and second" signals nor can it be a signal from which noise is "substantially removed." N.Mot:41 (citing Friedlander Direct 1968:3-7). Masimo proffers the software specification for the adaptive comb filter in the 04 algorithm and suggests that it shows that the E[mix] signal is more than a noise signal because it allows the adaptive comb filter to track the pulse rate which, of course, is a physiologic measurement. See JTX 2755:NC1015943-45; M.Opp:36. This interpretation of the software specification is by no means apparent from reading it, and Masimo offered no expert testimony that the specification could be interpreted this way. Additionally, the specification that Masimo proffers references the 04 algorithm, not the 05Ci algorithm that Masimo accused. There is consequently no evidence that supports the jury's determination that the E[mix] signal is correlated to the physiologic measurement portions of the "first and second" signals and that it is a signal from which noise is "substantially removed." Because no evidence was presented [*33] from which a reasonable jury could have drawn this conclusion, the Court grants Nellcor's motion for judgment as a matter of law that Masimo presented insufficient evidence to support the jury's determination that claims 29 and 30 of the 785 patent are literally infringed.

C. 000 Patent

The jury found that neither Masimo's first nor its second generation cables and sensors infringed the asserted claims of Nellcor's 000 patent. Verdict Form, Q.14-15. Nellcor argues that such a finding is contrary to the evidence, and thus that the jury erred in rejecting Nellcor's infringement claim in its 000 patent. N.Mot:52-53. Nellcor's motion for JMOL that the 000 patent was infringed is denied because Nellcor has not met its burden to show that no reasonable jury could have found that infringement did not occur.

1. First Generation Cables

The evidence supports the jury's verdict that Nellcor has not proved that Masimo's first generation cables infringed Nellcor's 000 patent. Masimo presented evidence that its first generation cables were not made, used, sold,

offered for sale or imported after the 000 patent issued. Cronin Direct 2296:23-2298:1 (testifying that [*34] Masimo's manufacturing records, device history records, and sales records show no manufacture or sales after December 22, 1998 -- the date the 000 patent issued); see also Cronin Cross 2308:17-25 (explaining that first generation cables that were in Masimo's inventory after December 28, 2004 were reworked, not shipped to customers). Nellcor was unable to rebut this evidence, or to make any affirmative showing that Masimo's first generation cables were made or sold after December 22, 1998. See, e.g., Corenman Cross 1644:11-1645:24 (admitting that he did not know the time period during which the first generation cables were sold). Nellcor consequently failed to meet its burden to show that Masimo's first generation cables infringed the 000 patent, thus a reasonable jury could have easily found that these first generation cables did not infringe the 000 patent.

2. Second Generation Cables

In addition, a reasonable jury could have also found that Nellcor failed to prove infringement by Masimo's second generation cable design. Specifically at issue was whether Masimo's second generation design contained the "means for releasably connecting" limitation of claim 18 of the [*35] 000 patent. Masimo proffered expert testimony that the second generation cable does not have the "means for releasably connecting" element, as defined by this Court. Pologe Direct 2130:7-23. Mr. Pologe recognized that this Court's construction allows for the bridge to be replaced by a spring action clip; nonetheless, Pologe testified that Masimo's second generation cable does not infringe because the connectors neither have "a means for releasably connecting" nor an "equivalent" of a spring action clip. See id. (testifying that "[t]his is unique language because it's been construed by the Court to have a specific meaning. And given that specific meaning, I am testifying that the Masimo connectors do not have that means for releasably connecting" and that "the Masimo product doesn't function the same way, and it doesn't create the same result, and therefore it is not equivalent"). A reasonable jury may have accepted Pologe's testimony, and found that Nellcor failed to carry its burden to show infringement.

There is substantial evidence to support the jury's conclusion that Nellcor failed to demonstrate that Masimo's first generation cables were made, used or sold during the [*36] 000 patent term. There is also evidence sufficient to support the jury's conclusion that Masimo's second generation cable does not contain a the "means for releasably connecting" limitation as is required by the 000 patent and this Court's claim construction. Consequently, this Court cannot accept the argument that no reasonable jury could have concluded from the evidence

that Masimo's accused cables do not infringe Nellcor's *000 patent*.

II. WILLFUL INFRINGEMENT

To obtain a judgment of willful infringement, a patent holder must prove, by clear and convincing evidence, that the accused infringer acted without reason to believe that its action avoided infringement. *See State Contracting & Eng'g Corp. v. Condotte Am. Inc.*, 346 F.3d 1057, 1063-64 (Fed. Cir. 2003). Willfulness is determined by the totality of the circumstances. *See Gustafson, Inc. v. Intersystems Indus. Prods. Inc.*, 897 F.2d 508, 510 (Fed. Cir. 1990).

To prove willful infringement, Masimo had to prove, by clear and convincing evidence that 1) Nellcor was aware of the asserted patents, and 2) that Nellcor proceeded with its infringing activities without a good faith belief [*37] that the patents were either invalid, not infringed, or both. Jury Instruction 18; *see also Gustafson*, 897 F.2d at 510. Because Masimo did not present clear and convincing evidence from which a reasonable jury could conclude or even infer the existence of either of these factors, the Court grants Nellcor's motion for JMOL that any infringement of the 850, 830, or 222 *patents* by Nellcor was not willful. n15

n15 Because the Court found that there was not substantial evidence to support the jury's verdict of infringement of the 785 *patent*, and because there cannot be willfulness if there is no infringement, the Court makes no ruling on whether, if there was infringement of the 785 *patent*, the evidence could support the jury's conclusion that infringement was willful.

A. Notice

"[A] party cannot be found to have willfully' infringed a patent about which it had no knowledge." *Gustafson*, 897 F.2d at 510. Nellcor challenges the jury's verdict that Masimo's 850, [*38] 830, and 222 *patents* were willfully infringed on the basis that Masimo presented no evidence that Nellcor knew of the asserted claims prior to the suit being filed.

The 850, 830, and 222 *patents* issued in December 2000, March 2001, and July 2001, respectively, and were added to this case in July 2001. Thus the time between the asserted patents' issuance and filing date of this case ranged from seven months for the 850 *patent* to a single day for the 222 *patent*. Although Masimo presented no evidence that Nellcor had actual notice of Masimo's 850, 830, or 222 *patents* prior to this case being filed, Masimo argues that the jury could have inferred that Nellcor was

aware of Masimo's patents. M.Opp:27-28; Re Argument to Court 2829:15-2830:22.

The evidence Masimo cites to support this inference falls far short of what any reasonable jury could consider clear and convincing evidence. None of the evidence Masimo cites as being evidence from which the jury could have inferred notice is from a time close to the dates the 850, 830, or 222 *patents* issued. Masimo suggests that Tom Yorkey researched Masimo and wrote a "Summary of Masimo's Patents" in 1993, that Ross Flewelling created [*39] a document about Masimo around 1996, that Nellcor announced in 1997 that Masimo had five patents and others pending, and that Joe Kiani informed Nellcor in 1998 that Masimo had patents that Nellcor might infringe if it developed similar technology. M.Opp: 27-28 (referencing Yorkey Cross 1294:7-17; JTX 2428; JTX 2644; Flewelling Cross 1175:20-1176:16; Kiani Direct 336:10-339:5). None of this evidence comes within two years of the dates that the 850, 830, and 222 *patents* issued. None of this evidence even suggests that Nellcor had a policy of monitoring Masimo's patents in any systematic manner. While it is possible that the jury speculated there was some process by which Nellcor learned of Masimo's patents, and inferred from this speculation that Nellcor was aware of Masimo's patents, speculation is insufficient to fulfill Masimo's burden of proof, especially where, as here, the burden is a high one. *See Spaulding v. United States*, 455 F.2d 222, 228 (9th Cir. 1972)(explaining that "speculation does not sustain the plaintiff's burden of proof"). There is simply no evidence from which a reasonable jury could find that Nellcor had notice of Masimo's patents before suit [*40] was filed.

B. Good Faith

Once Nellcor became aware of Masimo's patents, it had a duty to act in good faith. There is no reasonable interpretation or inference of Masimo's evidence of lack of good faith that would satisfy Masimo's burden to prove this element by clear and convincing evidence.

1. Advice of Counsel

Masimo argues that Nellcor's failure to seek the advice of counsel is evidence that Nellcor did not act in good faith. However, advice of counsel is not necessary to establish good faith, and this Court instructed the jury to that effect. Jury Instruction 18. Furthermore, Masimo has not established that Nellcor became aware of the 850, 830, or 222 *patents* until this litigation began, at which time they did get the advice of counsel -- in preparing their defense. Nellcor's defenses in this case were that these patents are not infringed, and that they are invalid and unenforceable. Although the jury ultimately rejected these defenses, it is impossible to conclude that they were frivolous. Particularly in light of Nellcor's suc-

cess in the litigation regarding the closely related 642 patent, it could not have been unreasonable for Nellcor to believe that [*41] its defense would prevail.

Because Masimo did not proffer evidence from which a reasonable jury could have found that Nellcor had knowledge of the 850, 830, or 222 patents prior to this litigation, and because Nellcor obviously obtained assistance from counsel in preparing its defenses in this case, there was insufficient evidence to support the idea that Nellcor had some opportunity to obtain advice of counsel that it did not take.

2. Copying

Masimo directs this Court's attention to two cases where willfulness was found to have existed even though the patent holders did not prove pre-suit notice of the patents. See *Crystal Semiconductor Corp. v. Tritech Microelectronics Int'l*, 246 F.3d 1336 (Fed. Cir. 2001); *National Presto Indus. Inc. v. West Bend Co.*, 76 F.3d 1185 (Fed. Cir. 1996). In both of these cases, the accused infringer had at least several months notice of the patents, and there was also evidence of copying. See *Crystal*, 246 F.3d at 1343-44; *National Presto*, 76 F.3d at 1193.

There is no evidence from which it would be reasonable to conclude that there was copying in this case. Masimo's argument to the contrary [*42] essentially rests on the testimony of one witness, its founder Joe Kiani. M.Mot:32-33. In his testimony, Mr. Kiani describes a number of meetings with Nellcor where he showed them Masimo's technology. See, e.g., Kiani Direct 289:4-292:15. Tellingly, Mr. Kiani never says that he made technology disclosures to Nellcor. No evidence was presented that Mr. Kiani or anyone at Masimo told Nellcor about patented features such as Kalman filters, adaptive comb filters, and alternative calculations. To reach a conclusion that there was copying in this case, one would have to speculate from the mere fact that Mr. Kiani met with Nellcor that he made confidential disclosures, and then would have to further speculate that Nellcor copied these disclosures and incorporated them into their products. There was no evidence to support these conclusions, much less clear and convincing evidence. Even rejecting Nellcor's contrary evidence and argument and drawing all inferences in favor of Masimo, this web of thinly supported speculation does not rise to the level of clear and convincing evidence needed to support a finding of willfulness.

Masimo did not meet its burden in proving the willfulness case. [*43] There was no evidence from which a reasonable jury could infer pre-suit notice of the 850, 830, and 222 patents and there was even less evidence of copying. Nellcor's motion for JMOL on willfulness is granted.

III. VALIDITY

Nellcor challenged the validity of each of Masimo's asserted patents on the grounds of anticipation, obviousness, inadequate written description, and lack of enablement. It was Nellcor's burden to prove invalidity by clear and convincing evidence. The jury found that Nellcor failed to meet this burden, and concluded that the challenged patents are valid. Verdict Form, Q.10-13. Nellcor challenges this verdict under 35 U.S.C. § 112, and under §§ 102-03. n16

n16 Nellcor challenges the jury's verdict on written description and enablement (for each of Masimo's asserted patents), and anticipation (for the 222, 830, and 850 patents), but does not challenge the jury's conclusion that the inventions in Masimo's patents are not obvious.

A. § 112: Patent [*44] Specification -- Written Description and Enablement

The written description requirement of 35 U.S.C. § 112 calls for a specification that adequately describes each limitation of the claimed invention. *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1479 (Fed. Cir. 1998)(citing *Lockwood v. American Airlines*, 107 F.3d 1565, 1572 (Fed. Cir. 1997) ("While the meaning of terms, phrases, or diagrams in a disclosure is to be explained or interpreted from the vantage point of one skilled in the art, all the limitations must appear in the specification.")). The enablement requirement of § 112 requires that the specification provide enough guidance to teach those skilled in the art how to make and use the claimed invention without "undue experimentation." *Genentech, Inc. v. Novo Nordisk*, 108 F.3d 1361, 1365 (Fed. Cir. 1997).

Nellcor presents two arguments for JMOL of invalidity under § 112: (1) the argument that the Kalman claims are not adequately described and enabled and (2) the argument that the Court should have given the 642 decision issue preclusive effect. n17

n17 Nellcor made an additional motion for JMOL of invalidity of the 785 patent. In light of the Court's decision to grant JMOL that the 785 patent was not infringed, deciding invalidity of the 785 patent is unnecessary. However, there was sufficient evidence to support the jury's conclusion regarding the 785 patent.

Nellcor contends that there is no disclosure of how to select wavelengths to meet the linear relationship required by the 785 patent claims,

and thus that this patent is not enabled. A reasonable jury could conclude that Nellcor failed to meet its burden to prove that argument. The jury might have concluded, for example, that once one of skill in the art understood from the disclosure of the 785 *patent* that a linear relationship was desirable, choosing wavelengths necessary to create that relationship would not be complicated. Mr. Corenman's testimony, which made selecting wavelengths appear to be a simple process, would have supported this conclusion. Corenman Direct 1463:4-1464:5. Even if this jury reached its conclusion for other reasons, Nellcor did not present evidence to prove that further disclosure would be necessary once the disclosures in the 785 *patent* were understood. Thus, it was not unreasonable for the jury to conclude that Nellcor failed to meet its burden to provide clear and convincing evidence that the 785 *patent* was invalid.

[*45]

1. Kalman Claims

a. Written Description

As is true of all of the claims Masimo asserted, the jury determined that the Kalman filter claims in the 222 and 850 *patents* were adequately described. n18 There are two potential bases upon which the jury could have reached this verdict. First, they may have accepted that those of skill in the art would understand the joint process estimators described in the patent specifications to be mathematically equivalent to the Kalman filters in the claims. Alternately, the jury may have found that the Kalman claims were adequately described because the patents list "Kalman filters" as one of a number of correlation cancellation techniques that "may be used together with the reference signals of the present invention" as an alternative to joint process estimation. JTX 3541 col. 49:35-41.

n18 Nellcor's motion actually protests the validity of the 785, 830, and 222 *patents* because of their alleged failure to adequately describe Kalman filters, but neither the 785 nor the 830 *patent* contains Kalman claims. Because the 222 and 850 *patents* contain Kalman claims, and because these are the patents discussed in the latter part of Nellcor's argument on this subject, the Court assumes that it is actually the 222 and 850 *patents*' Kalman claims that Nellcor argues are invalid. See N.Mot:44-45.

[*46]

The latter alternative (that the jury found Kalman filters to be a correlation cancellation technique that, when used with a reference signal, could be an alternative to joint process estimation) could not -- consistent with the jury's infringement verdict -- have been the basis for the jury's conclusion. If this was the theory under which the jury found that there was adequate written description, then the jury could only have found infringement if Nellcor's products contained correlation cancellers with reference signals or the equivalent thereto. There is no evidence in the record from which a reasonable jury could have reached that conclusion.

The remaining theory under which the jury could have found adequate description (that those of skill in the art would understand joint process estimators to be mathematically equivalent to Kalman filters) is consistent with the infringement verdict, and it is supported by evidence in the record. Nellcor contends that only two types of filters are disclosed in the 060 application that matured into the 850 and 222 *patents*: a least mean squares adaptive filter and a least squares lattice joint process estimator. N.Mot:44 (citing Corenman [*47] Redirect 1903:2-7). Nellcor argues that although a least squares lattice filter can be derived from a Kalman filter, neither a least means squares filter nor a least squares lattice joint process estimator can be derived from a Kalman filter. N.Mot:45 (citing Corenman Redirect 1910:10-1912:21). n19

n19 Nellcor also cites *Masimo I* for the proposition that the specifications of the 222 and 850 *patents* disclose only adaptive noise cancellers, not the full scope of filters in the claims. N.Mot:44-45. This Court has previously ruled, more than once, that *Masimo I* does not have issue preclusive effect on this case. See, e.g., Claim Construction Order (2/27/03).

Masimo's witnesses disagree. See Kiani Direct 279:15-16 (using the terms "least squared lattice" [sic] and "Kalman filter" interchangeably); Diab Cross 663:23-667:19 (describing mathematical equivalence between the "recursive least square filter" and a "Kalman filter"); Goldberg Direct 2396:12-2398:3 (explaining that the least squares lattice [*48] joint process estimator depicted in Figure 8 of the 222 and 850 *patents* is a type of Kalman filter), Goldberg Direct 2399:9-2405:20 (explaining that a textbook cited in the patents demonstrates the correspondence between least squares lattice and Kalman filters and thus that those of skill in the art would have understood the correspondence); see also JXT 1817 (Haykin text on adaptive filter theory).

Relying upon the testimony of these witnesses and the exhibits upon which they relied, a reasonable jury could have concluded that least mean squares filters and least squares lattice joint process estimator filters are mathematically equivalent to Kalman filters, and that one of skill in the art would have understood the description of these filters in the 060 application to be equivalent to the Kalman filter in the claims.

b. Enablement

"[T]o be enabling, the specification of the patent must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation." *Genentech*, 108 F.3d at 1365 (quoting *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993)). Nellcor argues that none of the [*49] patents enable a Kalman filter because they describe neither how a Kalman filter could be implemented, nor how a "correlation cancellation technique" using the "reference signals of the present invention" might work. N.Mot:45. Nellcor cites to Dr. Friedlander's testimony that implementing a Kalman filter would require extensive information not suggested in Masimo's patents, and notes that Dr. Goldberg's conclusory statement to the contrary does little to explain how the patents enable implementation of Kalman filters. N.Mot:45 (citing Stone Redirect 1900:24-1901:20, Stone Redirect 1916:5-1921:17; JTX 9B ('364 patent discussed in Stone's examination); Goldberg Direct 2398:4-19).

There is perhaps an argument to be made that the Kalman claims are not adequately enabled, i.e. that the descriptions of least mean squares filters and joint process estimators do not enable claims to Kalman filters, but this is not the argument Nellcor makes. Instead, Nellcor's contentions assume that the Kalman claims require a correlation canceller. Because, as is previously discussed, the jury could reasonably have concluded that the Kalman claims were adequately described without limiting the Kalman claims [*50] to correlation cancellers, Nellcor's enablement argument fails.

2. Inconsistency with 642 Decision

Nellcor argues that the jury's verdict is inconsistent with *Masimo I* and that *Masimo I* has issue preclusive effect. N.Mot:46. This Court has rejected the argument that it should apply collateral estoppel on several prior occasions, and does so yet again for the reasons stated in this Court's previous Orders.

B. Anticipation n20

n20 Nellcor does not challenge the jury's verdict that the 785 patent is not anticipated.

1. 850 Patent: Alternative Calculation Claims

a. 04 Algorithm

Nellcor argues that each of the asserted claims of the 850 patent is invalid under 35 U.S.C. § 102(g) because they are anticipated by Nellcor's 04 algorithm. N.Mot:46-47. However, the jury was free to reject Nellcor's evidence that arbitration was introduced into Nellcor's 04 algorithm in 1993. And even if the jury did not reject this evidence, Masimo introduced evidence that [*51] Mr. Diab conceived of the alternative calculation claims by the fall of 1991. Interrogatory (read into the record) 1779:24-1780:4; JTX 1146; JTX 1147. Masimo also presented evidence that the alternative calculation claims were reduced to practice by January 18, 1993. Diab Direct 646:14-647:7 (explaining the date logs on software code, including version 140); JTX 1430 (showing January 18, 1993 as the latest date of modification on software version 140). In light of this evidence, a reasonable jury could have concluded that Nellcor failed to meet its burden to prove that Nellcor's 04 algorithm is prior art to the alternative calculation claims in the 850 patent. Nellcor's motion for judgment as a matter of law that Nellcor's 04 algorithm anticipates the asserted claims of Masimo's 850 patent is denied.

b. PCSat Software Code

Nellcor also argues that even if Masimo were able to prove invention prior to the 04 algorithm, the PCSat software code is anticipating prior art under 35 U.S.C. § 102(g). n21 Nellcor relies on Mr. Baker's testimony that he used alternative calculations in PCSat in 1991. Baker Direct 1743:3-1747:12; 1755:24-1756:19. However, Mr. [*52] Baker testified that the PCSat software was not used commercially or disclosed outside of Nellcor. Baker Cross 1769:17-1770:10. On the basis of this testimony, a reasonable jury could have concluded that any alternative calculations that were in the PCSat research project were abandoned, suppressed, or concealed.

n21 In passing, and without citing any evidence, Nellcor suggests in part of a sentence that in addition to the PCSat code, the N-200 anticipating prior art to the 850 patent. N.Mot:48, 11.14. As even Nellcor is apparently unable to cite evidence or make an argument that the N-200 utilized the alternative calculations claimed in the 850 patent, this suggestion is unpersuasive.

Nellcor argues that PCSat was incorporated into the 04 algorithm, and therefore was not abandoned, suppressed or concealed. Masimo introduced contrary evidence that suggested that the 04 did not incorporate the PCSat software. JTX 1007A, NC15186 (describing

PCSat as "spaghetti code [that] was not developed further or used directly [*53] in the development of the 04 code"); Baker Cross 1768:6-16 (suggesting that only the "concepts" of PCSat were carried forward); Goldberg Direct, 2380:2-2384:23 (stating that not even the concepts of the PCSat were carried forward into the 04 algorithm). A reasonable jury could have accepted Masimo's evidence and concluded that Nellcor had not proved that PCSat was prior art to Masimo's alternative calculation claims.

Additionally, Masimo presented evidence that PCSat code was not sufficient to anticipate the claims of the *850 patent*. Goldberg Direct 2379:6-2380:22, 2388:4-2393:6. Thus, even if the jury believed that PCSat was prior art to the invention claimed in the *850 patent*, the jury could have accepted the testimony of Masimo's expert and concluded that the PCSat did not anticipate the *850 patent*. This Court cannot find that no reasonable jury could have drawn this conclusion, so Nellcor's motion for judgment as a matter of law that the PCSat code anticipates the asserted claims of the *850 patent* is denied.

c. N-200

Nellcor argues that the asserted claims of the *850 patent* are anticipated by the N-200 in violation of 35 U.S.C. § 102(b). According [*54] to Nellcor, the N-200 meets each limitation of claims 1, 11, 12, 15, and 22 of the *850 patent* and was on sale as early as 1986. N.Mot:51-52 (citing Stone Direct 1847:9-1850:17). Masimo presented evidence that whereas the N-200 determines the heart rate from the ECG signal and the IR signal and chooses which of those signals to display, the invention in the *850 patent* requires alternative calculations of the same signal, and arbitration between the calculations, rather than between signals. See Goldberg Direct 2361:6-2368:18, 2389:1-2393:6.

A reasonable jury could have rejected the testimony of Nellcor's expert and accepted the testimony of Masimo's experts, particularly in light of the fact that the Patent Examiner reviewed the N-200 patents and concluded that they were not invalidating. Coreman Cross 1688:11-1692:17 (testifying that Nellcor has patents claiming various components of the N-200); Stone Cross 1874:25-1877:2 (admitting that the *642 patent* refers to the N-200 and was considered by the *850 patent* examiner); Goldberg Direct 2327:12-2331:18 (stating that the patent examiner had and considered prior art patents, including those claiming components of the N-200 and [*55] that the prosecution history contains no record that the examiner was concerned that the adaptive filter claims were anticipated); JTX 213 FH1854-1857(listing references the examiner considered in the *850* file history); JTX 540('167 patent referenced in Goldberg's tes-

timony); JTX 3231('254 patent referenced in Goldberg's testimony). Consequently, Nellcor's motion for JMOL that the N-200 is invalidating prior art under § 102(b) is denied.

2. 222 Patent: Kalman, Motion Claims, and Adaptive Filter Claims

a. 04: Kalman Claims

Nellcor argues that its 04 algorithm anticipates the Kalman claims in the *222 patent*, thus invalidating the *222 patent* under 35 U.S.C. § 102(g). N.Mot:48-49 (citing Friedlander Direct 1922:22-1924:20 (opining that Nellcor utilized Kalman filters in oximetry prior to Masimo's claimed invention); Yorkey Direct 1186:24-1212:9, 1217:7-1218:13, 1224:10-1227:7 (testifying that he utilized Kalman filters for Nellcor by October 1993); JTX 2062, NC15274 (presentation outline including reference to Kalman filter); JTX 2721, NC16285 (Yorkey's log book including notes entitled "Kalman filter for SAT"); JTX 1135 (Yorkey 8/11/04 summary [*56] of 04 technology, including references to Kalman filters), JTX 1007A (Baker 9/30/94 report on 04 technology, including reference to Kalman filters); JTX 1510 (Yorkey 10-24-93 document describing the 04 as including Kalman filters). Nellcor argues that Kalman filters were used in its 04 algorithm by the summer of 1993, prior to the October 1993 application in which Masimo first mentions the use of Kalman filters. N.Mot:49.

However, Masimo presented evidence that the 04 algorithm is not prior art to Masimo's invention. Masimo contends that it had conceived of the use of Kalman filters by the summer of 1990. Kiani Direct 277:19-280:10 (testifying as to conception in 1990); Diab Direct 630:13-641:16 (same); Interrogatory (read into record) 1778:7-1782:11; JTX 1100 (Diab lab notebook); JTX 1121 (same); JTX 1108 (software program dated 1990); JTX 1109 (software program dated 1990-91); JTX 1420 (software directory); JTX 3601 (same). Masimo argues that it had reduced the use of Kalman filters to practice by March 1991, when the 060 application was filed, and presented evidence that the Kalman filter claims in the *222 patent* were disclosed and enabled by the 060 application. M.Opp:46 (citing [*57] Goldberg Direct 2395:10-2405:16; JTX 1817(Haykin text); JTX 1818 (same)). Nellcor counters that the 060 application does not disclose or enable Kalman filters, but this argument relies upon this Court applying the *Masimo I* decision to this case, which this Court has declined to do.

A reasonable jury could have accepted Masimo's evidence that it invented the use of Kalman filters in 1990 and reduced the invention to practice in 1991, well in advance of Nellcor's claimed 1993 invention date. If the 04 algorithm was not prior art it could not be invalidating. The jury may have accepted Masimo's evidence

that the 04 algorithm was not prior art to the 222 *patent* and rejected the contrary evidence presented by Nellcor. As there was evidence to support the jury's conclusion, this Court cannot find that it was unreasonable. Thus Nellcor's motion for JMOL that its 04 algorithm anticipates the Kalman claims in the 222 *patent* is denied.

b. N-200

1) Claims 17 and 18

Nellcor contends that claims 17 and 18 are invalid under § 102 because they are anticipated by the N-200. N.Mot:49-50. Nellcor bases this argument on the contention that "handling motion" is the sole point of [*58] novelty of these claims. N.Mot:49. Masimo presented evidence that the N-200 did not "handle motion" as motion is defined in this Court's claim construction. This Court defined "motion" as "movement of body tissue which causes erratic noise that, in the absence of a filter, will cause the ratio of red to infrared signals to not accurately reflect the arterial oxygen saturation." Claim Construction Order. Masimo presented evidence that the N-200 gave readings during motion that did not "accurately reflect the arterial oxygen saturation." Kiani Direct 267:20-270:11 (describing using the N-200 to demonstrate the motion artifact problem), 357 (testifying that the N-200 did not work through motion); Kiani Cross 409:4-15 (testifying that the N-200 gave false alarms during motion, and thus was unreliable); Sims Direct 487:18-490:18 (describing the problem of false alarms during motion in general care units using the N-200); Barker Direct 551:20-552:18, 577:8-20 (testifying that the N-200 was unreliable during patient motion); Goldstein Direct 2215:2-2217:7 (describing noise problems with the N-200 in a neonatal intensive care unit). This evidence provides a basis from which a reasonable jury [*59] could have concluded that Nellcor did not meet its burden to show clear and convincing evidence that the N-200 anticipated claims 17 and 18 of the 222 *patent*. Nellcor's motion for judgment as a matter of law that the N-200 invalidates claims 17 and 18 of the 222 *patent* is denied.

2) Claims 21 and 22

Based on the contention that the point of novelty of claims 21 and 22 of the 222 *patent* is the use of adaptive filters, Nellcor argues that the N-200 anticipates these claims. Nellcor argues that Masimo's expert's testimony that the N-200's filters were "adjustable, not adaptive" because they did not improve their performance using "closed loop action" did not reflect any limitation actually present in the claims. N.Mot:50 (citing Friedlander Direct 2459:5-23 (testifying that there is no distinction between adjustable and adaptive filters), Goldberg Direct 2316:10-2320:21 (opining that prior art filters were adjustable, not adaptive)). Nellcor cites to evidence that

pulse qualification in the N-200 utilizes closed loop action to adapt to parameters. N.Mot:50 (citing Friedlander Redirect 2000:11-2001:15).

A reasonable jury could have rejected this testimony and accepted that [*60] of Masimo's experts, who testified that none of the filters in the N-200 is "adaptive" as required by the claims. Goldberg Direct 2317:1-2320:12 (defining adaptive filters), 2331:19-2338:2 (testifying that filters described in the prior art were not adaptive), 2441:2-2443:4 (opining that the 222 *patent* claims adaptive filters); Flewelling Cross 1164:8-1173:23, JTX 2640 (1992 Nellcor document listing adaptive filters as a potential area for new technology development); JTX 2415 (Flewelling presentation on oximetry technology development); *see also* Friedlander Cross 1981:5-1984:16; JTX 2062.

Particularly in light of the fact that the Patent Examiner determined that claims 21 and 22 were patentable over the N-200 patents and references, this Court cannot find that no reasonable jury could reach the same conclusion. *See* Goldberg Direct 2331:6-18 (testifying that the patent examiner saw prior art patents and evidently determined that they do not claim adaptive filters). Nellcor's motion for JMOL that claims 21 and 22 of the 222 *patent* are anticipated by the N-200 is denied.

c. PCT application

Nellcor argues that Masimo should receive a 1993 priority date for the 222 [*61] *patent*, not the 1991 date it claims, and that Masimo's PCT publication, which was published in September 1992, is therefore invalidating prior art. N.Mot:51. This basis for JMOL was not raised in the motions for JMOL that Nellcor made during trial, and was not included in Nellcor's renewed motion. *See, e.g.*, Nellcor's Motion for Judgment as a Matter of Law (filed March 10, 2004); Nellcor's Renewed Motion for Judgment as a Matter of Law, or For a New Trial (filed 04/15/04) ("N.Renewed"). Nellcor has consequently waived this argument. *FRCP Rule 50* (specifying that motions for JMOL on an issue must be made "at any time before submission of the case to the jury") (emphasis added).

Nellcor has not demonstrated that the evidence was such that no reasonable jury could have found that the 222 *patent* was not anticipated. There was evidence from which the jury could reasonably have rejected Nellcor's validity challenge, and thus there is no basis for this Court to grant JMOL that the 222 *patent* was anticipated.

3. 830: Adjustable Filter Claims

Nellcor challenges the jury's validity finding regarding the 830 *patent* on the basis that the "use of filters where the filter transfer [*62] function is adjusted" is the sole point of novelty in these 830 claims. Nellcor con-

tends that the N-200 meets the limitations of the asserted claims of the 830 and consequently anticipates those claims. This argument is the same as that made with regard to claims 21 and 22 of the 222 *patent*, discussed above, and is rejected for the same reasons. Nellcor's motion for JMOL that the N-200 anticipates the asserted claims of the 830 *patent* is consequently denied.

C. Obviousness

In one sentence at the end of a section on anticipation of claims 21 and 22 of the 222 *patent*, Nellcor notes that "[a]daptive filters would have been obvious in light of their prior use in physiological monitors, such as fetal heart rate monitors." N.Mot.:50 (citing 444:6-47:20 (admitting that adaptive filters had previously been used in fetal heart monitoring); JTX 278, p.329 (book describing use of adaptive noise cancelling in electrocardiography)). However, it was Nellcor's burden to prove obviousness by clear and convincing evidence. A reasonable jury could have concluded that Nellcor's evidence regarding fetal heart rate monitors failed to fulfill this burden. Nellcor's motion for JMOL that [*63] the use of adaptive filters in oximeters was obvious is denied.

IV. DAMAGES

Nellcor argues that it is entitled to JMOL that Masimo should not receive damages for lost profits. N.Mot:69-73. To receive lost profits as actual damages, Masimo must demonstrate, by a preponderance of the evidence, that but for the infringement it would have made Nellcor's sales. *State Industries, Inc. v. Mor-Flo Industries, Inc.*, 883 F.2d 1573, 1577 (Fed. Cir. 1989). Masimo relied on the four-factor Panduit test to support its lost profits claim; only one of these factors is currently in dispute. See *Panduit Corp. v. Stahlin Bros. Fibre Works*, 575 F.2d 1152, 1156 (6th Cir. 1978); *State Industries*, 883 F.2d at 1577 (discussing the Federal Circuit's acceptance of the Panduit test). Nellcor argues that Masimo failed to present sufficient evidence to support one of the factors of the Panduit test: the absence of non-infringing substitutes. N.Mot:69-73.

Two categories of potential substitutes were discussed at trial: "conventional" oximeters and "next generation" oximeters. Masimo presented evidence that while conventional oximeters were non-infringing, [*64] they were not acceptable substitutes because they did not have the motion tolerant features for which customers specifically chose both Masimo's oximeters and Nellcor's infringing oximeters. With regard to "next generation" oximeters, Masimo presented evidence that consumers would not consider them acceptable substitutes, and that if they were acceptable substitutes they also likely infringed Masimo's patents.

The jury apparently accepted this evidence. During trial, they were instructed:

In determining whether Masimo lost sales due to infringement, you must consider whether or not, if Nellcor's infringing products or methods were not available, some or all of the people who bought from Nellcor would have bought a different, non-infringing product from Nellcor or from somebody else, rather than buy from Masimo.

In deciding whether or not people who bought from Nellcor would have bought a non-infringing product, you should consider whether or not there was a demand for the patented aspects of the infringing product so that purchasers would not have bought a non-infringing product.

Jury Instruction 55. Applying this standard to the evidence presented, the jury concluded [*65] that Masimo had proved, by a preponderance of the evidence, that Masimo had demonstrated lost profits from lost sales. To reach this conclusion, the jury must have determined that for 80% of Nellcor's infringing sales there was no non-infringing alternative to Masimo to which customers would have turned.

Although lost profits must be proved and not speculative "the patent holder does not need to negate all possibilities that a purchaser might have bought a different product or might have foregone the purchase altogether." *State Industries*, 883 F.2d at 1577. Nellcor's contention to the contrary suggests a misunderstanding of what the Panduit test represents. Panduit is simply one way of reconstructing the market as it would have been but for the infringement. See *Grain Processing Corp. v. American Maize-Products Co.*, 185 F.3d 1341, 1350-51 (Fed. Cir. 1999)(describing reconstructing the market for lost profits analysis). The requirement that there be an absence of acceptable non-infringing substitutes is an expression of the idea that to receive compensation for all infringing sales, the patent holder must prove that none of those sales would have gone [*66] elsewhere in the but-for world. See *State Industries*, 883 F.3d at 1577 (describing the Panduit test as one standard for calculating lost profits).

In this case, Masimo does not seek lost profits for all of the infringing sales. By seeking lost profits for 80% of Nellcor's infringing sales, rather than for all of the infringing sales, Masimo took account of the possibility

that Nellcor's customers might have bought a different product or might have foregone the purchase had Nellcor's infringing products been unavailable. Because it does not seek lost profits for 100% of the sales, Masimo need not demonstrate the complete absence of acceptable non-infringing alternatives.

Masimo must, however, support its theory that 80% of Nellcor's infringing sales would have gone to Masimo. This requires Masimo to prove that for 80% of Nellcor's infringing sales, the customers would not have found conventional oximeters acceptable substitutes and that next-generation oximeters from third party companies would have either been unacceptable or infringing. Masimo presented evidence to this effect, and this Court cannot say that no reasonable jury could have accepted that evidence. [*67]

It was not necessary for Masimo to prove a complete absence of non-infringing alternatives, and Masimo offered evidence to support its contention that for 80% of Nellcor's sales there would have been no non-infringing alternative to Masimo's products. Consequently, Nellcor's motion for judgment as a matter of law that Masimo cannot receive damages for lost profits is denied.

BENCH TRIAL

At the pretrial conference on January 21, 2004, this Court determined that Nellcor's equitable defenses of indefiniteness and unenforceability would be presented to the Court, not the jury. Following the conclusion of the damages phase of the trial, the Court heard evidence on the equitable defenses on March 24 and 25, 2004.

I. INDEFINITENESS

Each of the asserted claims of the 222 patent contains a "motion" limitation. Nellcor argues that the claims of the 222 patent are indefinite because they do not distinguish the motion tolerance of the claimed invention from the tolerance available the prior art and because they fail to clearly define "motion" and "without significant interference." N.Mot:7.

The ability to tolerate "motion", "without significant interference" to the [*68] saturation calculation is a key feature of the 222 patent. Claims 1 and 4 require the determination of saturation "during motion." 222 patent, col. 73. Claim 16 requires the determination of saturation "in the presence of motion induced noise." 222 patent, col. 74. Claims 17-18 and 21-23 require the calculation of saturation "without significant interference in the calculation from the motion induced noise portion" of the signals. 222 patent, col. 74-76. Claims 17 and 18 are of particular concern to Nellcor, because the ability to tolerate "motion" is, at least according to Nellcor, the only innovation in those claims. N.Mot:5.

A. Defining What is Claimed

Claims must clearly delineate what the patent holder owns so that the public is fairly apprised of what is not claimed. *See Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 730-31, 152 L. Ed. 2d 944, 122 S. Ct. 1831 (2002); *Angen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1217 (Fed. Cir. 1991).

1. Claim Construction

"If a claim is subject to construction, i.e., it is not insolubly ambiguous, it is not invalid for indefiniteness." *Bancorp Servs. L.L.C. v. Hartford Life Ins. Co.*, 359 F.3d 1367, 1372 (Fed. Cir. 2004). [*69] That this Court was able to construe the terms "motion" and "without significant interference" in the 222 patent claims suggests that these terms are not indefinite. Claim Construction Order (filed 2/27/03).

a. Qualitative Definitions

The Court's constructions of "motion" and "without significant interference" are qualitative, but this does not make them indefinite. *See Bancorp Servs.*, 359 F.3d at 1372; *Exxon Research & Eng'g Co. v. United States*, 265 F.3d 1371, 1381 (Fed. Cir. 2001); *Modine Mfg. Co. v. United States Int'l Trade Comm'n*, 75 F.3d 1545, 1557 (Fed. Cir. 1996). Qualitative definitions require "only a reasonable degree of particularity and definiteness" to survive indefiniteness challenges. *Exxon Research*, 265 F.3d at 1381. Thus, this Court's constructions must be reasonably particular and definite for Masimo's 222 patent to be valid.

1) Motion

The Court defined "motion" as "movement of body tissue which causes erratic noise that, in the absence of a filter, would cause the ratio of red to infrared signals not to accurately reflect the arterial oxygen saturation." Claim Construction Order: [*70] 16. Contrary to Nellcor's assertion that this definition could apply to any motion, all motion, or some undefined intermediate level of motion, the Court's construction of "motion" places two clear limits on the term. The construction clarifies that motion must cause "erratic" noise, and that this noise must cause the ratio of red to infrared signals to not "accurately reflect the arterial oxygen saturation." Because they define the type and level of motion claimed in the patent, the Court's constructions are reasonably particular and definite.

2) Without Significant Interference

The Court's construction of "without significant interference" requires that "the calculated oxygen saturation is accurate enough for the purposes for which the calculation is being employed." Claim Construction Order: 16. Despite not being quantitative, this construction

is reasonably definite in that it indicates that, even in the presence of motion, a saturation calculation must be useable for its intended purpose for the claim language to be fulfilled.

b. Skill in the Art

Indefiniteness is judged from the perspective of one of skill in the art. If upon reading the claims in light of the specification [*71] one of skill in the art would not understand the scope of the invention, the claims are indefinite. *Miles Lab. v. Shandon, Inc.*, 997 F.2d 870, 875 (Fed. Cir. 1993). Both parties presented evidence during trial that those skilled in the relevant field understood what was meant by "motion." Even Mr. Corenman from Nellcor admitted that the Court's construction of "motion" was "completely understandable." Corenman Cross 4013:8-4014:21; see also Corenman Cross 4016:8-15 (opining that the 222 patent is indefinite, but admitting that the Court's definition gives meaning to the word "motion"). Mr. Corenman testified that the Court's construction defined a broad range of motion, but could clearly pinpoint the low end of that range -- i.e. "wiggling [one's] finger a half an inch to an inch." Corenman Direct 1543:2-22. That even Nellcor's witness admitted his ability to understand what was encompassed in the term "motion", as defined by this Court, suggests that the term is not indefinite.

B. Distinguishing Close Prior Art

To prevent uncertainty as to the scope of the claims, claims must clearly distinguish close prior art. *United Carbon Co. v. Birney & Smith Co.*, 317 U.S. 228, 236-37, 87 L. Ed. 232, 63 S. Ct. 165, 1943 Dec. Comm'r Pat. 758 (1942); [*72] *Amgen*, 927 F.2d at 1217-18 (finding that chemical compound claims reciting "about 160,000 IU/AU" were indefinite, given prior art compounds using 128,620 IU/AU, because it was unclear what value between 128,620 and 160,000 would constitute infringement). Nellcor asserts that the N-200 is close prior art, and that the 222 claims are indefinite for failure to distinguish the N-200. N.Mot:8-9.

This indefiniteness argument is really a disguised invalidity argument. Masimo's situation is not the same as that in *Amgen*, where the disputed term, which was added to avoid prior art, potentially recaptured the area that had been specifically rejected. 927 F.2d at 1217-18. In this case, however, the motion claims were not added to avoid an invalidity challenge, and both the examiner and the jury concluded that the 222 patent claims were distinguishable from and thus patentable over the N-200. Nellcor has failed to prove either that the N-200 is close prior art, or that the 222 claims are indistinguishable from it. This indefiniteness argument, which is really a disguised invalidity argument, consequently fails.

The Court finds that the claims of "motion" [*73] and "without significant interference", as defined by this Court, are sufficiently definite to give those of skill in the art notice as to what is claimed by the 222 patent. Nellcor's indefiniteness defense is, therefore, denied.

II. UNENFORCEABILITY

The regulations governing patent prosecution impose a duty of candor and good faith on applicants:

Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the [Patent] Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section.

37 C.F.R. § 1.56. Nellcor argues that Masimo has breached this duty, and that its 222, 830, and 850 patents are therefore unenforceable. N.Mot:17-31. "Inequitable conduct rendering a patent unenforceable arises when there is evidence of affirmative misrepresentation of material fact, failure to disclose material information, or submission of false material information, coupled with an intent to deceive." *Ulead Systems, Inc. v. Lex Computer and Management Corp.*, 351 F.3d 1139, 1144 (Fed. Cir. 2003) [*74] (internal quotation omitted).

Inequitable conduct must be proved by clear and convincing evidence. *Abbott Labs v. TorPharm, Inc.*, 300 F.3d 1367, 1379-80 (Fed. Cir. 2002); *Li Second Family Ltd P'ship v. Toshiba Corp.*, 231 F.3d 1373, 1378 (Fed. Cir. 2000). If this burden is met and inequitable conduct is established, the patent is unenforceable. *Ulead Systems, Inc.*, 351 F.3d at 1144; *Kingsdown Med. Consultants v. Hollister, Inc.*, 863 F.2d 867, 877 (Fed. Cir. 1988). Inequitable conduct with regard to a single claim is sufficient to render the entire patent unenforceable. *Kingsdown*, 863 F.3d at 877.

The first step in evaluating an inequitable conduct claim must be to determine whether the party asserting inequitable conduct has demonstrated materiality and intent. Materiality is defined in the PTO's regulations:

Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and 1) it establishes, by itself, a prima facie case of unpatentability n22 of a claim; or 2) it

refutes, or is inconsistent [*75] with a position the applicant takes in i) opposing an argument of unpatentability relied on by the Office, or ii) asserting an argument of patentability.

n22 "A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of the evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability." 37 C.F.R. § 1.56.

37 C.F.R. § 1.56(b). n23 Intent may be proved by circumstantial evidence. *Critikon*, 120 F.3d at 1256 ("Direct evidence of intent or proof of deliberate scheming is rarely available in instances of inequitable conduct, but intent may be inferred from surrounding circumstances."). If the applicant knew, or should have known, that the PTO would consider withheld information to be material, [*76] intent may be inferred. Id.

n23 Nellcor cites the pre-1992 standard for materiality, which says that information is material if "there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent." N.Mot:23. As the events in question here occurred in the fall of 2000, they are not judged by this standard. See *CFMT, Inc. and CFM Technologies, Inc. v. Yieldup International Corp.*, 349 F.3d 1333, 1340 (Fed. Cir. 2003) (applying this standard to pre-1992 conduct).

If threshold levels of materiality and intent are established, the Court then must evaluate the applicant's conduct to determine whether it constitutes inequitable conduct. *Dayco Prods., Inc. v. Total Containment*, 329 F.3d 1358, 1363 (Fed. Cir. 2003) (noting that the court must weigh "materiality and intent in light of all the circumstances to determine whether the applicant's conduct is so culpable that the patent should be held unenforceable"); [*77] *Semiconductor Energy Lab Co. v. Samsung Elecs. Co.*, 204 F.3d 1368, 1373 (Fed. Cir. 2000) ("In light of all the circumstances, an equitable judgment must be made concerning whether the applicant's conduct is so culpable that the patent should not be enforced.")

Nellcor presents two inequitable conduct arguments. First, Nellcor asserts that Masimo committed inequitable conduct through its failure to disclose documents and decisions related to the 642 litigation to the Patent and Trademark Office. Next, Nellcor argues that Masimo committed inequitable conduct by saying in specifications that prior art oximeters were "totally inoperative" despite knowing that the N-200 was operable during motion.

A. '642 Decision

Although not a part of this case, the 642 patent has been repeatedly discussed in this litigation because the 222, 830, and 850 patents that are at issue in this case are related to Masimo's 642 patent. The application that resulted in the 642 patent was a continuation of the 060 application, which is also true of each of the 222, 830 and 850 patents. The 830 application has an identical specification to the 642 patent. Prior to the present [*78] litigation, Masimo unsuccessfully accused Nellcor of infringing the 642 patent. *Masimo I*.

In the 642 litigation the District Court construed Masimo's claim language narrowly and granted summary judgment. *Masimo I*, JTX 8510, aff'd JTX 8512. Nellcor contends that because the Court's summary judgment decision in the 642 litigation preceded the issuance of the 222, 830, and 850 patents, and because Masimo did not disclose the Court's findings on the 642 litigation to the District Court, Masimo's conduct was inequitable.

Although the Court finds that Nellcor has not established the materiality of the *Masimo I* litigation to the prosecution of the 222 and 850 patents, the threshold showings of materiality and intent were made with respect to the 830 patent. Masimo's conduct with respect to the 830 patent was sufficiently culpable to justify finding that inequitable conduct occurred and that the 830 patent is unenforceable.

1. 830 Patent

The 642 decision was relevant to the scope of the claim terms *"adaptive filter" and "adaptive signal processor." These same terms were at issue in Masimo's prosecution of the 830 patent before the PTO at the same time they [*79] were at issue in the 642 litigation. Masimo's conduct in failing to disclose the 642 litigation or the *Masimo I* decisions to the PTO during the prosecution of the 830 patent fulfills the requirements of threshold showings of materiality and intent, and was so culpable that the balance of equities favors holding the 830 patent unenforceable.

a. Materiality

The key dispute in the *Masimo I* summary judgment hearings was whether the terms "adaptive filter" and

"adaptive signal processor" in the *642 patent* were limited to an "adaptive noise canceller." *Masimo I* Transcript, JTX 8506, 6080:25-6081:3 (Masimo's statement), 6094:25-6095:2 (Nellcor's statement). The Court concluded that the *642* specification, in light of the claims and prosecution history, only supported a construction of "adaptive filter" that was limited to an "adaptive noise canceller." *Masimo I*, JTX 8510, P 71, *aff'd* JTX 8512 (Fed. Cir. 2001) ("The specification repeatedly teaches the use of an adaptive noise canceller to remove noise from the input signals once the noise reference signal is generated, and it does not point to any other filter that performs a similar function").

The *Masimo* [*80] *I* Court's determination that "the term[s] adaptive filter' . . . adaptive signal processor' . . . can only mean one specific type of adaptive filter, an adaptive noise canceller" was clearly important to the prosecution of the *830 patent*. Masimo's failure to disclose the *Masimo I* litigation was a failure to disclose information highly material to the position Masimo took during prosecution that both "adaptive filter" and "adaptive noise canceller" claims were patentable. n24 The failure to disclose the *642* litigation therefore fulfills the regulatory definition of materiality.

n24 Masimo argues that even if the *642 patent* described only an adaptive noise canceller, this would not lead to the conclusion that broader claims would have been unpatentable. M.Opp:13, n.3. In this argument, Masimo misses the relevant consideration. The Court is not concerned with whether the *642* decision would have caused the examiner to reject the claims, but only whether it would have been material to the examiner's consideration of whether the claims were patentable.

[*81]

The *Masimo I* dispute was highly relevant to the *830 patent* because the *830* and *642* patents share a specification, and Masimo was pursuing an amendment before the PTO that would add to the *830 patent* exactly those terms being disputed in the *642* litigation. At the time of the *Masimo I* summary judgment hearing and the Court's decision on it, Masimo was prosecuting what ultimately became claims 41, 43, 63 and 66 of the *830 patent*. JTX 207. Independent claims 41 and 63 both include the term "adaptive filter." Dependent claims 43 and 66 further limit "adaptive filter" in claims 41 and 63 to "adaptive noise canceller," clarifying that Masimo intended "adaptive filter" in the *830 patent* to not be limited to "adaptive noise canceller." Masimo was thus pursuing "adaptive filter" claims along with dependent claims to clarify that "adaptive filter" was to be broadly interpreted.

This position is directly contrary to the *Masimo I* Court's conclusion that the same specification, in light of the claims and prosecution history, required construing "adaptive filter" to be limited to an "adaptive noise canceller." Thus in amending the application that became the *830 patent* to include [*82] the terms "adaptive filter" and "adaptive noise canceller", and in such a way as to clarify that the former was not limited to the latter, Masimo advanced a position before the PTO that was called into question by the summary judgment proceedings in the *642* litigation. By not disclosing the existence of the litigation, or the Court's rulings on the "adaptive filter" issue, Masimo withheld material information from the PTO.

b. Intent

In this case Masimo had reason to know that the *642* litigation was material, the litigation and the patent prosecution were handled by the same lawyer, and there is no good faith explanation for Masimo's failure to disclose the litigation. These factors make it possible to infer that Masimo withheld information about the *642* litigation with the intent to deceive the PTO.

1) High Materiality

As is discussed above, the *642* litigation was highly material to prosecution of the *830 patent*. That the litigation was very material lowers the threshold of intent required to establish inequitable conduct. *See Critikon, Inc. v. Becton Dickinson Vascular Access, Inc.*, 120 F.3d 1253, 1256 (Fed. Cir. 1997) ("The more material the omission [*83] or misrepresentation, the lower the level of intent required to establish inequitable conduct, and vice versa.") In this case, however, intent could be inferred even if the threshold were not lowered because Masimo knew, or at least should have known, of the materiality of the information it chose not to disclose.

Masimo had reason to know that the *Masimo I* Court's decision was material to the prosecution of the *830 patent*. During the prosecution of the *642 patent*, the examiner initially rejected claims using the terms "adaptive filter" as unsupported by the specification. *See* JTX 8510, P 15. The examiner wanted to treat the term "adaptive filter" in the *642 patent* as being limited to an "adaptive noise canceller." JTX 8506, 6082:13-23. n25 Masimo convinced the examiner that "adaptive filter" should not be limited to "adaptive noise canceller," thus the *642 patent* issued with "adaptive filter" in the claims.

n25 In his statement opposing summary judgment in the *642* case, Mr. Jensen explained:

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Now, more interestingly here, the patent office has already dealt with this issue expressly. During the prosecution the patent office, interestingly, demanded the very same rewrite that the defendants propose. And the examiner said, "I'm going to treat the term as an adaptive noise canceller." And Masimo insisted that it was entitled to the term "adaptive filter," and pointed the examiner to the places where that was supported in the specifications and ended its argument by saying, yes, it is entitled to the term "adaptive filter." That's what Masimo did.

JTX 8506:6082:13-23.

[*84]

Given this history, and that these same terms were at issue in the 642 litigation, Masimo had reason to know that the litigation and the Court's decisions on it would be material to Masimo's successful attempt to amend the 830 patent to add "adaptive filter" claims along with dependent claims to clarify that "adaptive filter" was to be broadly interpreted.

That Masimo knew that the 642 examiner was concerned that the specification supported only "adaptive noise canceller" and not "adaptive filter" claims gave Masimo reason to know that the *Masimo I* Court's decision essentially affirming the 642 examiner's concerns would be material to whether those same terms were patentable in the 830 patent, which contains the same specification. The Court can -- an does -- infer intent from this evidence.

2) Patent and Litigation Counsel

The principal attorney representing Masimo before the PTO was also Masimo's litigation counsel. Jensen Direct 3837:2-10 (noting that Jensen's representation of Masimo began in 1994), JTX 8506 (Jensen arguing the summary judgment motion in the 642 case). It is impossible to believe that the lawyer who argued for Masimo that "adaptive filter" [*85] and "adaptive signal processor" should not be limited to "adaptive noise canceller", who was at the same time pursuing amendments to the 830 patent that would add "adaptive filter" and "adaptive signal processor" claims and clarify that they were not to be restricted to "adaptive noise cancellers" could not have known that the former would be important to the latter. The *Masimo I* decision held that the specification

that the 830 and 642 patents share did not support the claims Masimo was amending the 830 application to include. n26 That Masimo was represented by the same attorney in the 642 litigation and 830 prosecution makes it undeniable that while Masimo continued prosecution of the 830 patent Masimo was well aware of the materiality of the *Masimo I* Court's decision. These circumstances are evidence from which intent may be inferred.

n26 Consistent with this Court's previous ruling that the 642 patent does not have issue preclusive effect, it is notable that the *Masimo I* Court ruled that the 642 specification, in light of the claims and prosecution history, only described "adaptive noise canceller" and not "adaptive filter" claims. Although differences in the claims and prosecution history caused this Court to determine that the 642 patent would not be given issue preclusive effect in this case, the fact that the specifications of the 642 and 830 patents are identical is very relevant to the Court's determination that the 642 litigation was material to the prosecution of the 830 patent.

[*86]

3) Good Faith

Masimo's attempt to demonstrate good faith was unconvincing. Masimo argued that the protective order governing the 642 litigation prohibited it from disclosing the litigation to the PTO. M.Opp.22. However, Masimo's counsel testified that he understood that he could have gone to the *Masimo I* Court and had material designated so that it would no longer be covered in the protective order. Jensen Direct 3900:7-12. Masimo's counsel approached neither the Court nor Nellcor about withdrawing any material from the protective order in the 642 litigation for the purposes of disclosing it during the prosecution of the 830 patent. Jensen Direct 3900:7-20. Because Masimo made no attempt to overcome the barrier to disclosure presented by the protective order, this Court cannot find that it was more than a convenient excuse not to disclose. Had Masimo sought and been denied permission to disclose relevant information, the protective order would likely constitute evidence of good faith. But Masimo neither sought to withdraw material from the protective order, nor did it alert the PTO to the existence of material that could not be disclosed or even the fact that the litigation [*87] existed. The mere existence of the protective order is insufficient to demonstrate Masimo's good faith.

The Court recognizes that "even gross negligence does not alone suffice to establish intent." *CFMT*, 349 F.3d at 1342; see *Ulead Systems*, 351 F.3d at

1145(noting that the PTO's post-1992 rule removes the gross negligence language of the original rule and replaces it with references to "intent to deceive"). In this case, however, there is substantial evidence from which intent -- not merely negligence -- may be inferred. The 642 litigation was highly material to the *830 patent* and, given both the prosecution history of the *642 patent* and the fact that the same lawyer represented Masimo in the 642 litigation and the *830 patent* prosecution, there is ample evidence from which it may be inferred that Masimo knew that the litigation was material. Masimo has not offered convincing evidence of good faith. Consequently, the evidence supports the inference that Masimo withheld the 642 litigation and the *Masimo I* Court's decisions with the intent to deceive the PTO. In light of all the evidence, Masimo's conduct indicated "sufficient culpability to require [⁸⁸] a finding of intent to deceive." *CFMT*, 349 F.3d at 1343.

c. Unenforceability

As Nellcor has established intent and materiality by clear and convincing evidence, the Court must evaluate whether Masimo's conduct rises to the level of inequitable conduct. Based on the clear materiality of the 642 decision, the PTO's expressed interest in the exact question being considered by the 642 litigation, the fact that the 642 litigation and the *830* prosecution were happening at the same time, the fact that the same lawyer controlled both the litigation and the prosecution, as well as Masimo's failure to demonstrate good faith, this Court finds that Masimo committed inequitable conduct by neglecting to bring the 642 litigation to the attention of the PTO. Because of Masimo's inequitable conduct, this Court holds that the *830 patent* is unenforceable.

2. 222 Patent

Both the *642 patent* that was at issue in *Masimo I* and the *222 patent* at issue in this case stem from the 060 application. The priority date for the 060 application is March 1991. Because the *222 patent* relates back to this 060 application, Masimo's claimed priority date for the Kalman claims [⁸⁹] in its *222 patent* is also March 1991. Nellcor argues that the *Masimo I* decision determined that the 060 application does not disclose Kalman filters, and thus that Masimo cannot rely on the March 1991 priority date. Nellcor believes that this inability to rely on the March 1991 date is material to patentability because the next date on which Masimo could rely, the October 1993 date of Masimo's continuation-in-part (CIP) application, falls after the date that Nellcor contends it first began using Kalman filters in the 04 algorithm. n27

n27 Nellcor briefly mentions an alternate theory of inequitable conduct related to the 222

patent. The *222 patent* describes an adaptive noise canceller as an example of a correlation canceller and mentions a Kalman filter as another correlation cancellation technique. JTX 3541 col. 1:18-21, col. 49:36-38. Nellcor argues that because the *Masimo I* Court concluded that the only filters disclosed in the 642 specification were adaptive noise cancellers that receive noise reference signals, and because the applications that led to the 222 and 642 decisions were similar, the *Masimo I* decision was material to the prosecution of the *222 patent*. Nellcor's simple assertion that because the applications were similar, the ruling on the 642 is relevant to the prosecution of the *222 patent* does not approach sufficient evidence to establish materiality. Nellcor does not even attempt to explain how the *Masimo I* ruling might have affected patentability of the 222 claims, and certainly has not presented clear and convincing evidence of materiality.

[⁹⁰]

Nellcor has not offered clear and convincing evidence that the *Masimo I* Court's decision was material to the priority date. If it were true that the *Masimo I* Court held that the 642 specification (which is the same as the 060 application) does not disclose Kalman filters, Nellcor might have an argument that this decision is material to establishing patentability of the Kalman claims. This is not, however, what the Court ruled. The *Masimo I* Court does not examine the 642 specification to determine whether a claim to Kalman filters could be supported by that specification. The closest the Court comes to making any ruling about what filters are or are not in the claims is its determination that using filters that do not accept a noise reference signal would be contrary to the teachings of the patent. JTX 8510, P 51. The Court holds that the particular Kalman filters in Nellcor's 04 algorithm do not infringe the limitations of the claims that were asserted in the 642 litigation, but makes no determination about whether Kalman filters generally are supported by the patent. JTX 8510, PP 72-75. Nellcor has not demonstrated that this limited ruling is material to whether the [⁹¹] 060 application supports Kalman filter claims.

Even if the *Masimo I* decision meant that Masimo could not claim the 1991 priority date, this does not necessarily mean that the earliest date Masimo could claim is the date of its October 6, 1993 CIP application. Nellcor has not demonstrated that Masimo could not prove earlier conception, with either reduction to practice prior to Nellcor's claimed invention date or diligent work until its reduction to practice. Without this showing, Nellcor

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has not demonstrated that a later priority date would be material to patentability.

Because Nellcor has not offered clear and convincing evidence that the decisions and documents from the 642 litigation were material to patentability of the 222 *patent*, the Court does not reach the question of intent. Without a threshold showing of materiality, Nellcor cannot sustain an equitable conduct claim.

3. 850

Nellcor argues that the exhibits to the Yorkey and Baker declarations that were submitted in the 642 litigation establish that Nellcor implemented alternative calculations and arbitration in the 04 algorithm prior to filing date for Masimo's 850 claims, which was October 7, 1994. However, [*92] to be relevant to patentability, Nellcor would have to demonstrate that it implemented alternative calculations and arbitration prior to Masimo's priority date, which is not necessarily equivalent to Masimo's filing date. n28 Nellcor has not demonstrated that anything in the Yorkey and Baker declarations was material to patentability because it has not established that Masimo's priority date was subsequent to the inventions Nellcor claims are demonstrated by those declarations. Nellcor has consequently not met its burden of proof regarding materiality. Because this threshold element has not been proved, Nellcor's inequitable conduct claim must fail.

n28 Masimo argues that it conceived of the alternative calculation claims by the fall of 1991 and reduced them to practice by January 1993. M.Opp:15-16.

B. N-200 Motion Tolerance

Nellcor claims that Masimo intentionally withheld various experiments showing the ability of the N-200 to read accurately during motion. Nellcor attempts to substantiate this claim [*93] by taking quotes from the 222 and 850 specifications out of context and arguing that the allegedly withheld experiments were inconsistent with those quotes. In addition to being misleading and wasteful of this Court's time and resources, these misquotes are insufficient to establish materiality.

Nellcor asserts that the 830 and 222 *patent* specifications state that prior art oximeters were "totally inoperative" during movement, and that the N-200 experiments were material to the PTO's consideration of those statements. See N.Mot:30 (asserting that the specification of the 830 *patent* claims that the previous monitors were "totally inoperative during time periods when the patient moves" and that the specification of the 222 *patent* claims that the "presently available physiological moni-

tors" were "totally inoperative" when the "measurement site is perturbed").

Nellcor quotes only part of the specifications in question. The actual language in Masimo's 830 specification reads:

"Traditional signal filtering techniques are frequently totally ineffective and grossly deficient in removing these motion induced effects from a signal. The erratic or unpredictable nature of motion [*94] induced undesired signal components is the major obstacle in removing them. Thus, presently available physiological monitors generally become totally inoperative during time periods when the patient moves."

'830 *patent*, JTX 3547, col. 2:37-45 (emphasis added); see also 222 *patent*, JTX 3541, col. 2:53-60 (using language identical to the 830 language quoted, except substituting "measurement site is perturbed" for "the patient moves" in the final sentence). In misquoting the specifications, Nellcor creates the impression that Masimo's specifications state, definitively, that the prior art never read through motion -- a statement that would be inconsistent with the results of the withheld experiments. However, the actual statements in the specification are qualified. Nellcor has failed to demonstrate how the allegedly withheld experiments are material to evaluating these qualified statements. n29

n29 In fact, the experiments appear to support these statements, as qualified. At trial, Kiani testified that the "generally totally inoperative" language in the specification means that "more often than not, in fact the product would be inoperative." Kiani Direct 3967:9-22. Studies have shown this to be true especially during movement; even the study that Nellcor cites in support of its Motion indicates that the N-200 falsely alarms in 36 out of 50 motion events. JTX 3390 at Table 2 -- "FP" line, Methods at 102-04.

[*95]

Given the actual text of the specification and the evidence presented at trial, Nellcor has not made a threshold showing of materiality. In light of this lack of materiality, the Court does not reach the question of intent. Masimo's failure to disclose certain experiments as prior art has not been shown to be material to any of the patents at issue. Thus it does not amount to inequitable conduct.

NEW TRIAL

As an alternative to its motions for JMOL, Nellcor moves for a new trial pursuant to *FRCP 59(a)* on all issues relating to both liability and damages. Nellcor contends that a new trial is warranted in this instance because (1) the jury verdict is against the clear weight of the evidence, (2) there were several legal errors throughout the case which prevented a fair trial, and (3) Masimo's counsel acted in a manner that irreparably prejudiced the outcome and prevented a fair trial on the merits. N.Mot: 53-69. n30

n30 In its renewed JMOL motion, Nellcor makes an additional argument that does not appear in its memorandum in support of that motion. Nellcor contends that if this Court concludes that Masimo committed inequitable conduct, as is the case with the *830 patent*, a new trial must be granted because the damages award was based on infringement of all four patents. N.Renewed: 14. This argument is unconvincing because damages were based on sales of actual products, and the same products containing elements the jury concluded infringed the *830 patent* were also found to infringe the *222* and *850 patents*. Had the *830 patent* never been in this case, there is no reason to believe that the jury's verdict or this Court's decision on the *222* and *850 patents* would have been any different. Thus the same products would have infringed, and the same damages would have been awarded. This inequitable conduct argument does not provide a basis for granting a new trial.

[*96]

I. WEIGHT OF THE EVIDENCE

Nellcor seeks a new trial based on its assertion that the jury's liability verdict was against the clear weight of the evidence, and that the damages verdict was both against the weight of the evidence and excessive. A District Court may grant a new trial if "the verdict is contrary to the clear weight of the evidence, or is based upon evidence which is false, or to prevent, in the sound discretion of the trial court, a miscarriage of justice." *Silver Sage Partners, Ltd. v. City of Desert Hot Springs*, 251 F.3d 814, 818-19 (9th Cir. 2001) (internal quotations omitted). "In order to find that a verdict was against the clear weight of the evidence, the court must more than simply disagree with the jury's decision." *Computer Access Tech. Corp. v. Catalyst Enters., Inc.*, 273 F. Supp. 2d 1063, 1065-66 (N.D. Cal. 2003).

Nellcor has not met its burden to prove that the jury reached a decision that is contrary to the clear weight of the evidence on either the liability or the damages issues. While this Court may have found certain witnesses to be more credible and persuasive than those the jury relied upon, and as such [*97] may disagree with some of the ultimate conclusions of the jury, this Court does not find that the jury's decisions regarding liability or damages were either unsupported by the great weight of the evidence or excessive.

II. LEGAL ERROR

Nellcor argues that a new trial is justified because it claims that this Court has made several legal errors. n31 To grant a motion for a new trial based upon legal error, the moving party must show that it was "substantially prejudiced" by the ruling and that there is a significant chance the ruling affected the jury's verdict. *United States v. 99.66 Acres of Land*, 970 F.2d 651, 658 (9th Cir. 1992). In this case, however, the Court does not reach the question of whether Nellcor was "substantially prejudiced" by any legal error because Nellcor has not demonstrated that error existed. For reasons given in the original rulings made by this Court both prior to and during trial, this Court believes that its rulings were supported by the law and within the Court's discretion.

n31 Nellcor protests several rulings it believes were erroneous. These include the Court's Orders filed on 1/22/04, 2/19/04, 2/26/04, 1/21/04, the Court's determination that insufficient evidence had been presented to support including the reverse doctrine of equivalents on the verdict form, and the Court's decision to bifurcate damages from liability. See N.Mot:55-68.

[*98]

III. PREJUDICIAL CONDUCT

A new trial may be warranted on the grounds of attorney misconduct during the trial "where the flavor of misconduct . . . sufficiently permeates an entire proceeding to provide conviction that the jury was influenced by passion and prejudice in reaching its verdict." *Anheuser-Busch, Inc. v. Natural Beverage Distrib.,* 69 F.3d 337, 346 (9th Cir. 1995) (citations omitted).

Nellcor has not demonstrated any conduct on the part of Masimo's counsel that could not have been adequately countered through cross examination. There has certainly been no showing of misleading statements or actions that would be sufficient to demonstrate that the jury's verdict was the result of passion or prejudice.

Thus, the Court rejects each of the three bases Nellcor asserts demonstrate the need for a new trial, and finds that a new trial is not warranted. Nellcor's motion for a new trial is therefore denied.

INJUNCTION

Masimo claims that, as a matter of law, it is entitled to an injunction prohibiting Nellcor from "making, using, selling, offering to sell or importing any product that includes the 04, 05, or 05CI algorithms or any product employing [*99] an algorithm that is no more than colorably different from the 04, 05, or 05CI algorithms" or from supplying software embodying these algorithms to others. Proposed Permanent Injunction ("Inj"), P 2-3. Under Masimo's proposed injunction, until the Federal Circuit issues its decision in any appeal of this case Nellcor would be permitted to repair broken or defective infringing products and to replace infringing products with an identical model. Inj: P 4. Once any appeal has been resolved, Nellcor would not be permitted to repair infringing products or replace them with other infringing products. Id.

35 U.S.C. § 283 provides that courts with jurisdiction over patent cases "may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by the patent, on such terms as the court deems reasonable." As a general rule, when infringement has been proved an injunction should be granted to protect the patent holder's property right. *Richardson v. Suzuki Motor Co., Ltd.*, 868 F.2d 1226, 1246-47 (Fed. Cir. 1989)(holding that a district court erred in not granting an injunction because "[i]nfringement having [*100] been established, it is contrary to the laws of property, of which the patent law partakes, to deny the patentee's right to exclude others from use of his property. . . . It is the general rule that an injunction will issue when infringement has been adjudged, absent a sound reason for denying it").

Nevertheless, the decision of whether to grant an injunction in a patent infringement case is within the Court's discretion. *Odetics, Inc. v. Storage Technology Corporation et al.*, 185 F.3d 1259, 1272 (Fed. Cir. 1999) ("[W]e also recognize that district courts, as befits a question of equity, enjoy considerable discretion in determining whether the facts of a situation require it to issue an injunction."); *Kearns v. Chrysler Corp.*, 32 F.3d 1541, 1551 (Fed. Cir. 1994) ("[E]ntitlement to an injunction implementing the right to exclude, as compared with only assessing damages against an infringer, is not absolute even during the life of a patent, but is discretionary."); *Roche Prods. v. Bolar Pharmaceutical Co.*, 733 F.2d 858, 865 (noting that whether an injunction should issue "depends on the equities of the case"). n32

n32 Masimo's representation to the Court that "there's no question that once the Court enters judgment on a patent case, that we are entitled to an injunction" was a misstatement of the law. Trial Transcript 4047:18-24.

[*101]

Although the Court may, within its discretion, refuse to grant an injunction, it should have a good reason for doing so. *W.L. Gore & Associates, Inc. v. Garlock Inc.*, 842 F.2d 1275, 1281 (Fed. Cir. 1988) (indicating that an injunction "should issue once infringement has been established unless there is a sufficient reason for denying it"). In the past, courts have refused to grant injunctive relief when the public interest is better served by denying the injunction, and when damages sufficiently compensate the patentholder. *See Shiley, Inc. v. Bentley Laboratories, Inc.*, 601 F. Supp. 964, 969-70 (C.D. Cal. 1985) ("As a court of equity, the court must consider all of the circumstances, including the adequacy of legal remedy, irreparable injury, whether the public interest would be served, and hardship on the parties and third parties."), aff'd 794 F.2d 1561 (Fed. Cir. 1986). These justifications for refusing equitable relief are relevant to this case.

Although Masimo is correct that injunctions are typically granted against products found to infringe another's patents, this case is not typical. As part of its damages case, Masimo emphasized [*102] that the pulse oximetry industry is unique in that hospitals strongly prefer to standardize oximetry products so that the entire hospital is using one manufacturer's oximeters. Masimo Damages Opening 2878: 14-19, 2879:21-19; Kiani Direct 2942:25-2943:9, 2943:22-2944:22; Mosher Direct 2965:10-2966:12; Wagner Direct 3053:18-21, 3096:25-3101:11; see also Jones Direct 3295:12-19 (testifying about Nellcor's bid to convert a hospital). This unusual aspect of the pulse oximetry industry leads to the conclusion that an injunction in this case (in the form that Masimo suggested) would be against the public interest, and duplicative of the jury's damage award. Consequently, Masimo's request for an injunction is denied.

I. PUBLIC INTEREST

The Court is not obligated to enjoin infringement if the injunction would contravene the public interest. *See Mercoid Corp v. Mid-Continent Inv. Co.*, 320 U.S. 661, 665, 88 L. Ed. 376, 64 S. Ct. 268, 1944 Dec. Comm'r Pat. 641 (1944) ("It is the public interest which is dominant in the patent system."); *Morton Salt Co. v. G.S. Suppiger Co.*, 314 U.S. 488, 492, 86 L. Ed. 363, 62 S. Ct. 402, 1942 Dec. Comm'r Pat. 733 (1942) ("It is a principle of general application that courts, and especially courts of equity, may appropriately [*103] withhold their aid

where the plaintiff is using the right asserted contrary to the public interest"). In this case, the public interest would be disserved by an injunction against Nellcor

Masimo sought and won increased damages based on the importance of standardization in the pulse oximetry market; this feature of the market also must weigh heavily in any analysis of the propriety of an injunction. Masimo's proposed injunction would force hospitals currently using Nellcor's infringing technologies to make a choice between two undesirable options: either work with an amalgam of oximeters of different brands, or make the substantial investment it would take to convert the entire hospital to a non-infringing brand. Forcing this choice would likely compromise patient safety by forcing health professionals to switch back and forth between types of oximeters, or by driving up the hospitals' costs and making care less accessible. Thus the burden of the injunction would primarily be borne by hospitals, the patients they serve, and the public who fund many of them. Hospitals would be forced to either convert to Masimo's products or to give up the standardization that Masimo has demonstrated [*104] is important to staff training, patient care, and cost containment.

Injunctions have been found to be against the public interest when they would affect public health or safety. *Vitamin Technologists, Inc. v. Wisconsin Alumni Research Found.*, 146 F.2d 941, 946 (9th Cir. 1945) (denying an injunction on public interest grounds because the holder of a patent for a process of producing Vitamin D in organic substances by exposing them to UV rays refused to permit the irradiation of oleomargarine, thus preventing the aid to or cure of rickets), *Milwaukee v. Activated Sludge*, 69 F.2d 577, 593 (7th Cir. 1934) (denying an injunction that would have shut down a sewage treatment plant, potentially sending untreated sewage into Lake Michigan and endangering the health of the surrounding community); see also *Biagro Western Sales, Inc. v. Helena Chem. Co.*, 160 F. Supp. 2d 1112, 1136 (recognizing potential jeopardy to public health as a basis for denying a preliminary injunction). The public health impact of this case is admittedly smaller than those at issue in *Vitamin Technologists* and *Activated Sludge*. Nevertheless, the Court finds that the potential [*105] impact on health care and the costs thereof would make an injunction in this case against the public interest.

Additionally, while this Court does not decide that one company's oximeters are better than the others', the Court recognizes that at least some physicians will prefer Nellcor's oximeters to Masimo's products. Deakers 3340:23-3341:3 (testifying that having the "pleth wave" available through Nellcor's products rather than the synthesized wave displayed by Masimo's oximeters is important to his practice of medicine); Kim 3430:1-8 (not-

ing that the anesthesiology group at Huntington Memorial Hospital voted to discontinue use of Masimo's oximeters). The Court is concerned that forcing physicians who have been trained on one product and who prefer it in their practice to use a different product would compromise the safety of their patients.

Although the Court's primary concern is the immediate impact an injunction would have on the health care providers forced to bear its costs, it is also relevant that granting an injunction now would have repercussions well beyond the life of the patent. If an injunction were granted, Masimo would not only control new sales of its oximetry technology, [*106] but would essentially force hospitals that need to standardize to convert to Masimo's products. n33 This would lock Masimo in as the oximetry provider beyond the term of the applicable patents, a further reason to find that the injunction should be denied on public interest grounds. n34

n33 Although not critical to this Court's decision, it is helpful to bear in mind that Masimo's patents are narrow. An injunction in this case would give Masimo the opportunity to use its relatively small innovation to dictate the terms on which standardization could be accomplished throughout the pulse oximetry industry. As compared to the significance of the inventions claimed in Masimo's patents, the chaos and expense hospitals would be forced to undergo would be even more substantial.

n34 Courts have frequently denied injunctions in cases of patent misuse, because granting the injunction would give the patent holder a monopoly that extends beyond the scope of the patent. See, e.g., *Morton Salt Co.* 314 U.S. at 488 (denying an injunction where the petitioner misused its patent to create a monopoly in unpatented materials). Patent misuse has not been alleged in this case and this Court does not assume that any misuse has occurred. Nevertheless, this case is analogous to patent misuse cases in that the injunction Masimo proposes would, because of the nature of the oximetry market, expand its monopoly beyond the monopoly to which its patents give Masimo a right.

[*107]

II. DAMAGES

Typically, damages are designed to compensate for past infringement, and injunctions are issued to prevent future infringement. *Trans-World Mfg. Corp. v. Al Ny-*

man & Sons, Inc., 750 F.2d 1552 (Fed. Cir. 1984). In this case, because Masimo pursued and won damages for sensor sales in the future and for lost hospital conversions, an injunction would allow Masimo to make sales for which it has already been compensated. This potential for double recovery is another reason that an injunction is not appropriate in this case.

Masimo received damages not only for lost sales of oximeters and OEM boards but also for the lost future sales of sensors to complement those "sockets." Masimo's damages model assumes that Nellcor's installed base would remain constant (i.e. not be reduced by competition from Masimo) for the next 5 years, and compensates Masimo for lost profits on sensor sales to that installed base. Wagner 3207:12-17. However, if Nellcor is enjoined from competing with Masimo, its installed base will undoubtedly be diminished. See N.Opp:14. For each installed Nellcor oximeter that Masimo displaces it will receive a double recovery, from both [*108] the jury award and from sensor sales it makes that would otherwise have been Nellcor's sales.

Furthermore, Masimo's damages model included compensation for lost hospital conversions. If an injunction is granted in this case, because of the importance of standardization, Masimo will likely be able to convert those hospitals that wish to use the patented technology. Should those hospitals for which lost conversion damages were awarded wish to purchase additional oximeters, they will have to convert to Masimo's products to be able to standardize. Thus Masimo will receive the benefit of the actual conversion in addition to the theoretical one for which the jury awarded damages.

The Court recognizes that the majority of sales that the proposed injunction would prevent are not included within the jury's damage award, and that double compensation for conversions is a theoretical problem that may or may not occur, depending on hospitals' needs for new oximeters. However, these examples illustrate that at least some double recovery would result, and this further supports the Court's determination that an injunction is not appropriate in this case. *Carborundum Co. v. Molten Metal Equipment Innovations, Inc.*, 72 F.3d 872, 881 (Fed. Cir. 1995) [*109] ("[O]nce a patentee has been fully compensated by an infringer for the use of a device embodying the patented invention, a court may not grant an injunction preventing the infringer from using or repairing that device."); *Stickle v. Heublein, Inc.*, 716 F.2d 1550 (Fed. Cir. 1983).

Masimo argues that money damages would be insufficient because without an immediate injunction, it will suffer irreparable harm. Masimo's reasons for this claim, which are based largely on customer relationships and industry recognition, are unconvincing. n35 The Court is

not persuaded that Masimo will suffer irreparable harm if an injunction is not granted, and certainly does not believe that any harm Masimo might suffer outweighs the impact on the public interest.

n35 Nellcor also argues that it will suffer irreparable harm if an injunction is issued, but harm to the public, rather than to the infringer, is the important consideration here. That an infringing party could be harmed or even put out of business by the injunction is not sound reason to deny it. *Windsurfing International, Inc. v. AMF Inc.*, 782 F.2d 995, 1003 (Fed. Cir. 1986) ("One who elects to build on a product found to infringe cannot be heard to complain if an injunction against constituted infringement destroys the business so elected.").

[*110]

Given the inequitable conduct involved in pursuing the 830 patent, Masimo is not in a particularly strong position to ask this Court for equitable relief. Nevertheless, the Court carefully considered Masimo's request with an eye to the volume of precedent supporting granting injunctions in cases where infringement has been found. The Court has found that the standardization evidence Masimo relied upon to prove its lost conversion damages claim demonstrates that an injunction in this case would burden hospitals, physicians, patients, and the public and give Masimo double recovery. Thus this Court has decided to deny Masimo's request for an injunction.

The Court also notes that even had it found an injunction appropriate in this case, the one proposed by Masimo is overinclusive, vaguely worded and unfair. n36 For example, the Court is concerned that even counsel for Masimo could not explain what the "colorably different" language would mean in the context of the asserted patents. See Hearing (June 18, 2004). Although the Court accepts that the Federal Circuit has approved this language in different factual circumstances, if even Masimo does not know what it means under the [*111] present circumstances it would be hard to justify including it in an injunction. No injunction that would require hospitals that want to standardize to convert to Masimo's products would appear to be in the public interest. Masimo is clearly not entitled to the injunctive relief it has requested.

n36 Masimo has represented that Nellcor refused to discuss the terms of the proposed injunction, based on Nellcor's position that no injunction was warranted. Hearing (June 18, 2004).

CONCLUSION

For the most part, this memorandum of decision and order upholds the jury's verdict. The Court has, however, concluded that given the evidence presented and the law governing this case, the only reasonable conclusion to be drawn from the evidence is that Nellcor's products literally infringe claims 16 and 23 of the 222 *patent* and claim 17 of the 850 *patent*, that the infringement was not willful, and that the 785 *patent* is not infringed. The Court grants JMOL on these grounds. Furthermore, the evidence presented during [*112] the bench trial compels the conclusion that due to inequitable conduct in its prosecution, the 830 *patent* is unenforceable. Finally, following a careful review of the relevant case law and the facts relating to the business of the parties, the Court has concluded that an injunction is not in the public in-

terest and that damages will sufficiently compensate Masiyo for its losses due to the infringement of this patent.

Given this Court's ruling on the injunction, appropriate damages for sales not encompassed in the jury's damages award will require further determination. The Court will decide the appropriate damages and prejudgment interest, if any, following further oral argument on this issue. The Court does not require briefing on the issue of damages at this time, but will hear further argument on the issue of damages and interest at a time to be set by the Court.

IT IS SO ORDERED

DATED: July 12, 2004

Honorable Mariana R. Pfaelzer
United States District Judge